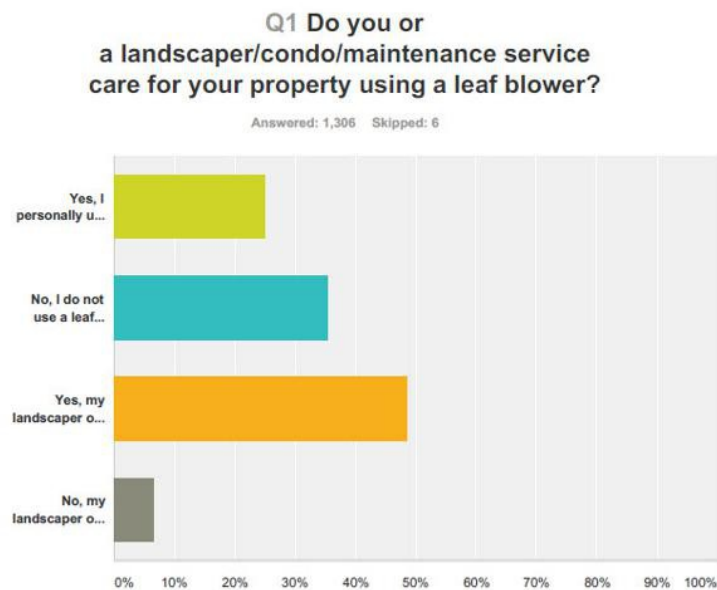


Appendix 1 – On-line Survey

The Committee prepared, with the help of the Town's IT Department, an on-line leaf blower survey which consisted of 16 questions, using “Survey Monkey” technology. This survey was widely publicized with neighborhood groups, Town Meeting Members, and the Tab newspaper and was featured and accessed via the Town's home page on the Web.

During the months of February and March the survey was available for residents to complete. The Committee viewed the survey has an adjunct to its public hearing, a vehicle to garner broader public opinion.

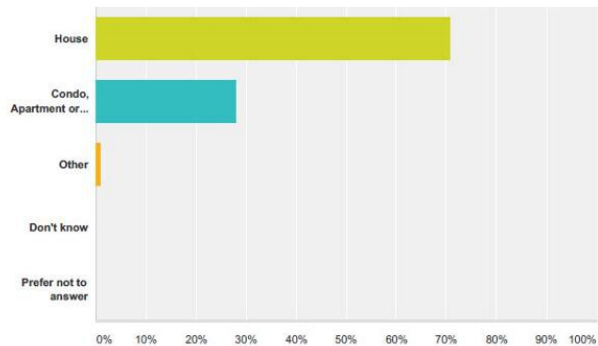
Some 1312 residents completed the survey with 1,025 volunteering their street name. The survey questions and results from Survey Monkey are as follows:



Answer Choices	Responses
Yes, I personally use a leaf blower	25.11% 328
No, I do not use a leaf blower	35.45% 463
Yes, my landscaper or maintenance company uses a leaf blower.	48.62% 635
No, my landscaper or maintenance company does not use a leaf blower.	6.74% 88
Total Respondents: 1,306	

Q2 Please let us know your household type:

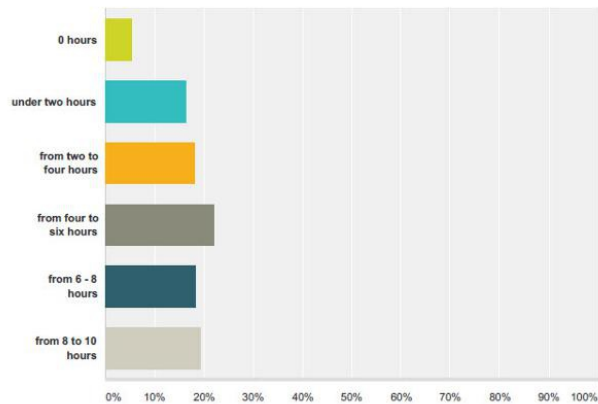
Answered: 1,306 Skipped: 6



Answer Choices	Responses
House	70.67% 923
Condo, Apartment or Townhouse	28.02% 366
Other	0.84% 11
Don't know	0.15% 2
Prefer not to answer	0.31% 4
Total	1,306

Q3 Between 8 am and 6 pm I am at home in my residence:

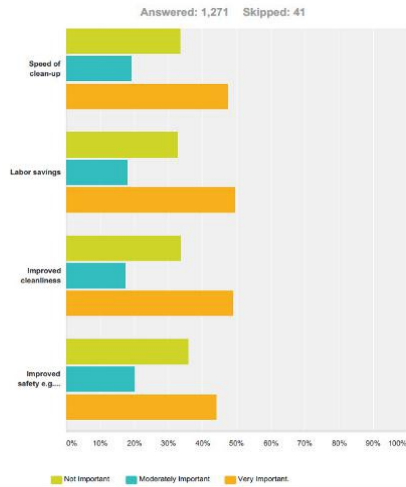
Answered: 1,284 Skipped: 28



Answer Choices	Responses
0 hours	5.53% 71
under two hours	16.59% 213
from two to four hours	18.07% 232
from four to six hours	22.12% 284
from 6 - 8 hours	18.38% 236
from 8 to 10 hours	19.31% 248

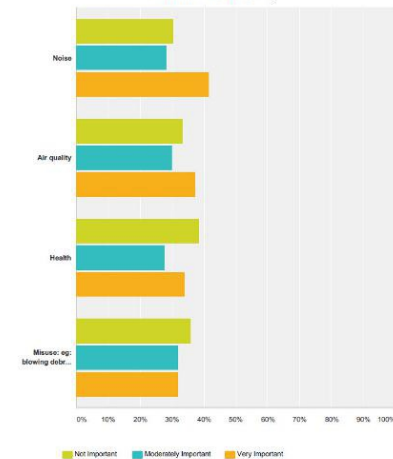
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Q4 Please rate the following possible benefits of leaf blowers for you. Check all that apply.



	Not Important	Moderately Important	Very Important	Total
Speed of clean-up	33.47% 422	19.19% 242	47.34% 597	1,261
Labor savings	32.70% 412	17.86% 225	49.44% 623	1,260
Improved cleanliness	33.55% 421	17.29% 217	49.16% 617	1,255
Improved safety e.g. frozen leaves on a walkway	35.94% 446	20.06% 249	44.00% 546	1,241

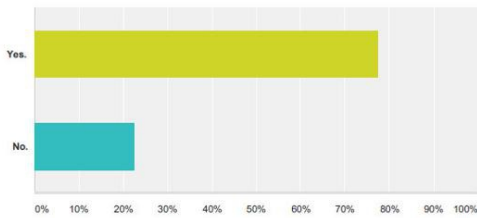
Q5 Please rate the following possible impacts of leaf blowers on you. Check all that apply.



	Not Important	Moderately Important	Very Important	Total
Noise	30.32% 393	28.16% 365	41.51% 538	1,296
Air quality	33.10% 426	29.76% 383	37.14% 478	1,287
Health	38.50% 489	27.64% 351	33.86% 430	1,270
Misuse: eg. blowing debris on neighboring properties	35.98% 453	32.01% 403	32.01% 403	1,259

**Q6 Are you aware of the current restrictions
on leaf blowers in Brookline?**

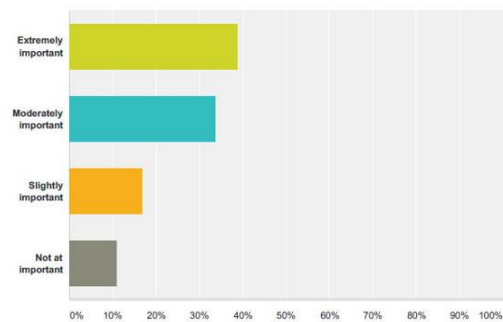
Answered: 1,304 Skipped: 8



Answer Choices	Responses
Yes.	77.45% 1,010
No.	22.55% 294
Total	1,304

**Q7 Perceived misuse of leaf blowers in
Brookline is part of the problem. How
important will additional education directed
at landscapers and home users be in
mitigating this part of the issue?**

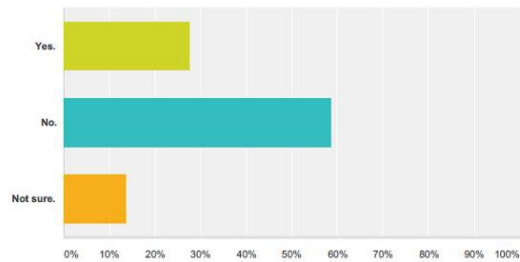
Answered: 1,286 Skipped: 26



Answer Choices	Responses
Extremely important	38.88% 500
Moderately important	33.51% 431
Slightly important	16.72% 215
Not at important	10.89% 140
Total	1,286

Q8 Are you in favor of a complete year round ban on gas-powered leaf blowers in Brookline?

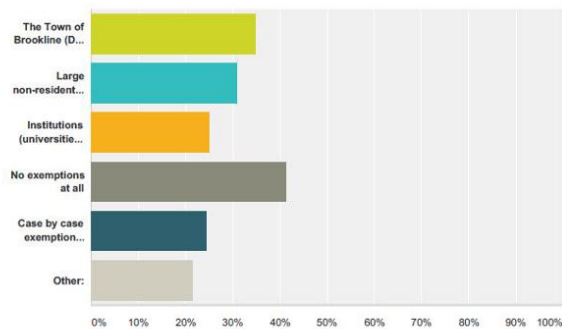
Answered: 1,302 Skipped: 10



Answer Choices	Responses
Yes.	27.65%360
No.	58.68%764
Not sure.	13.67%178
Total	1,302

Q9 Currently, the Town and large landowners are exempt from the existing restrictions. If gas-powered leaf blowers were to be completely banned in Brookline, should the following be exempt?

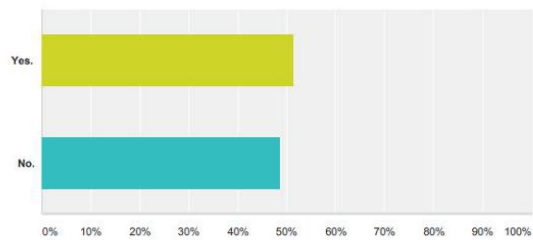
Answered: 1,280 Skipped: 32



Answer Choices	Responses
The Town of Brookline (DPW, Parks & Recreational)	34.84%446
Large non-residential areas (eg: golf courses, schools)	30.86%395
Institutions (universities, houses of worship)	25.16%322
No exemptions at all	41.25%528
Case by case exemption process that would apply equally to the Town, all institutions and residents	24.38%312

Q10 Brookline presently restricts the use of gas leaf blowers to two seasons in the year (spring and fall) and also the noise level for all leaf blower machines, gas and electric. Are you satisfied with these current restrictions on leaf blowers?

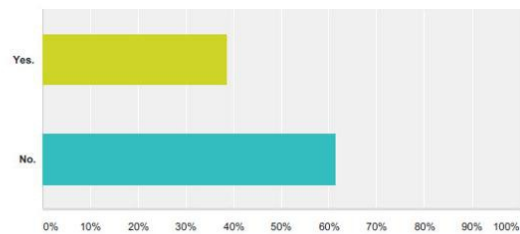
Answered: 1,268 Skipped: 44



Answer Choices	Responses	
Yes.	51.34%	651
No.	48.66%	617
Total		1,268

Q11 Are you in favor of additional restrictions on leaf blowers in Brookline?

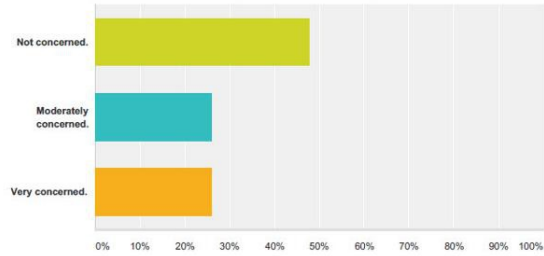
Answered: 1,247 Skipped: 65



Answer Choices	Responses	
Yes.	38.57%	481
No.	61.43%	766
Total		1,247

Q12 How concerned are you about the use of leaf blowers, particularly in performing spring and fall clean-up?

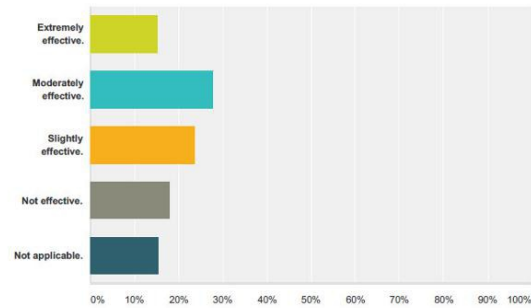
Answered: 1,292 Skipped: 20



Answer Choices	Responses
Not concerned.	47.76% 617
Moderately concerned.	26.16% 338
Very concerned.	26.08% 337
Total	1,292

Q13 If usage best practices are implemented through user education, how effective do you think this will be in reducing your overall concerns (if any) of leaf blower usage?

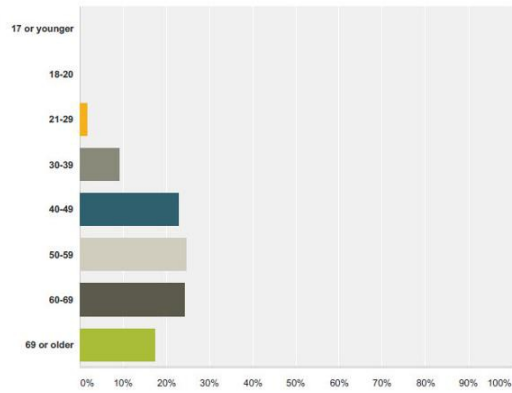
Answered: 1,276 Skipped: 36



Answer Choices	Responses
Extremely effective.	15.20% 194
Moderately effective.	27.74% 354
Slightly effective.	23.51% 300
Not effective.	18.03% 230
Not applicable.	15.52% 198

Q14 What is your age?

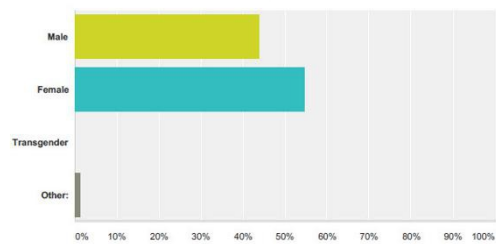
Answered: 1,292 Skipped: 20



Answer Choices	Responses
17 or younger	0.15% 2
18-20	0.08% 1
21-29	1.63% 21
30-39	9.29% 120
40-49	22.91% 296

Q15 What is your gender?

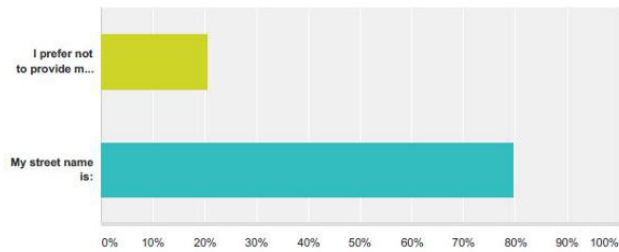
Answered: 1,284 Skipped: 28



Answer Choices	Responses
Male	43.85% 563
Female	54.67% 702
Transgender	0.31% 4
Other	1.17% 15
Total	1,284

Q16 Please provide your street name.

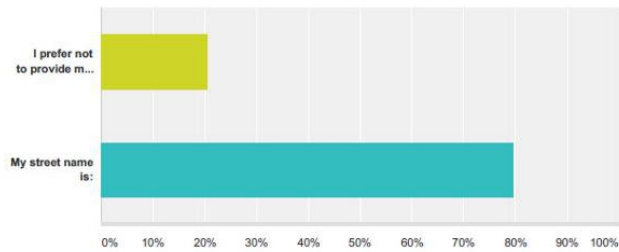
Answered: 1,298 Skipped: 14



Answer Choices	Responses	
I prefer not to provide my street name.	20.49%	266
My street name is:	79.51%	1,032
Total		1,298

Q16 Please provide your street name.

Answered: 1,298 Skipped: 14



Answer Choices	Responses	
I prefer not to provide my street name.	20.49%	266
My street name is:	79.51%	1,032
Total		1,298

Appendix 2 – Precinct Analysis

In addition the Committee performed an analysis of the data by precinct using the 1,025 respondent responses that gave a valid Brookline street. Some streets in Brookline have multiple precincts associated with them. For such a street, using Brookline's street index by street, the precinct number was assigned based on the proportion of addresses in that street for that group of responses with that street name.

Question 1

Q1: Do you or a landscaper/condo/maintenance service/care for your property using a leaf blower?													
Precinct	2016 Registered	2015 Voter Turnout	Responses	Response Rate/Reg	Response Rate/Turnout	Uses Leaf Blower	Does Not Use Leaf Blower	Service Uses LB	Service Does Not Use LB	% Use LB	% Does Not Use	% Service Uses LB	% Service Does not Use
1	2,173	554	77	3.5%	13.9%	14	24	48	4	18.2%	31.2%	62.3%	5.2%
2	1,694	366	32	1.9%	8.7%	6	11	17	3	18.8%	34.4%	53.1%	9.4%
3	2,345	640	54	2.3%	8.4%	9	28	20	7	16.7%	51.9%	37.0%	13.0%
4	2,106	536	44	2.1%	8.2%	6	23	14	6	13.6%	52.3%	31.8%	13.6%
5	2,493	822	83	3.3%	10.1%	20	41	26	7	24.1%	49.4%	31.3%	8.4%
6	2,346	873	97	4.1%	11.1%	24	52	27	7	24.7%	53.6%	27.8%	7.2%
7	2,178	568	27	1.2%	4.8%	4	11	13	1	14.8%	40.7%	48.1%	3.7%
8	2,224	703	83	3.7%	11.8%	21	32	32	10	25.3%	38.6%	38.6%	12.0%
9	2,213	623	45	2.0%	7.2%	11	22	15	4	24.4%	48.9%	33.3%	8.9%
10	2,283	488	18	0.8%	3.7%	2	3	13	2	11.1%	16.7%	72.2%	11.1%
11	2,411	628	39	1.6%	6.2%	7	17	15	4	17.9%	43.6%	38.5%	10.3%
12	2,659	815	74	2.8%	9.1%	22	22	40	2	29.7%	29.7%	54.1%	2.7%
13	2,341	724	122	5.2%	16.9%	32	35	71	10	26.2%	28.7%	58.2%	8.2%
14	2,429	687	95	3.9%	13.8%	22	22	63	1	23.2%	23.2%	66.3%	1.1%
15	2,419	655	81	3.3%	12.4%	27	16	49	2	33.3%	19.8%	60.5%	2.5%
16	1,971	791	54	2.7%	6.8%	23	14	21	2	42.6%	25.9%	38.9%	3.7%
Total	36,285	10,473	1,025	2.8%	9.8%	250	373	484	72	24.4%	36.4%	47.2%	7.0%
Survey Monkey		10,743	1,306		12.2%	328	463	635	88	25.1%	35.5%	48.6%	6.7%

Question 2

Q2: Please let us know your household type: House, Condo, Other, Don't Know													
Precinct	2016 Registered	2015 Voter Turnout	Responses	Response Rate/Reg	Response Rate	House	Condo	Other	Don't Know	House %	Condo %	Other %	Don't Know %
1	2,173	554	77	3.5%	13.9%	55	21	1	0	71.4%	27.3%	1.3%	0.0%
2	1,694	366	32	1.9%	8.7%	8	24	0	0	25.0%	75.0%	0.0%	0.0%
3	2,345	640	54	2.3%	8.4%	21	32	0	1	38.9%	59.3%	0.0%	1.9%
4	2,106	536	44	2.1%	8.2%	26	18	0	0	59.1%	40.9%	0.0%	0.0%
5	2,493	822	83	3.3%	10.1%	61	19	1	0	73.5%	22.9%	1.2%	0.0%
6	2,346	873	97	4.1%	11.1%	67	30	0	0	69.1%	30.9%	0.0%	0.0%
7	2,178	568	27	1.2%	4.8%	15	10	2	0	55.6%	37.0%	7.4%	0.0%
8	2,224	703	83	3.7%	11.8%	60	22	1	0	72.3%	26.5%	1.2%	0.0%
9	2,213	623	45	2.0%	7.2%	25	20	0	0	55.6%	44.4%	0.0%	0.0%
10	2,283	488	18	0.8%	3.7%	7	11	0	0	38.9%	61.1%	0.0%	0.0%
11	2,411	628	39	1.6%	6.2%	23	15	1	0	59.0%	38.5%	2.6%	0.0%
12	2,659	815	74	2.8%	9.1%	49	24	1	0	66.2%	32.4%	1.4%	0.0%
13	2,341	724	122	5.2%	16.9%	103	19	0	0	84.4%	15.6%	0.0%	0.0%
14	2,429	687	95	3.9%	13.8%	74	20	1	0	77.9%	21.1%	1.1%	0.0%
15	2,419	655	81	3.3%	12.4%	74	6	0	0	91.4%	7.4%	0.0%	0.0%
16	1,971	791	54	2.7%	6.8%	53	1	0	0	98.1%	1.9%	0.0%	0.0%
Total	36,285	10,473	1,025	2.8%	9.8%	721	292	8	1	70.3%	28.5%	0.8%	0.1%
Survey Monkey		10,743	1,306		12.2%	923	366	11	2	70.7%	28.0%	0.8%	0.2%

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Question 3

Q3: Between 8 am and 6 pm I am at home in my residence:																	
Precinct	2016 Registered	2015 'Yoter Turnou'	Responses	Response Rate/Reg	Response Rate	Hours 0	Hours <2	Hours 2-4	Hours 4-6	Hours 6-8	Hours 8-10	Hours 0	Hours <2	Hours 2-4	Hours 4-6	Hours 6-8	Hours 8-10
1	2,173	554	77	3.5%	13.9%	3	8	18	19	15	12	3.9%	10.4%	23.4%	24.7%	19.5%	15.6%
2	1,694	366	32	1.9%	8.7%	2	7	1	7	6	8	6.3%	21.9%	3.1%	21.9%	18.8%	25.0%
3	2,345	640	54	2.3%	8.4%	3	11	8	10	9	12	5.6%	20.4%	14.8%	18.5%	16.7%	22.2%
4	2,106	536	44	2.1%	8.2%	5	8	10	6	6	9	11.4%	18.2%	22.7%	13.6%	13.6%	20.5%
5	2,493	822	83	3.3%	10.1%	3	12	15	21	13	18	3.6%	14.5%	18.1%	25.3%	15.7%	21.7%
6	2,346	873	97	4.1%	11.1%	4	12	19	21	15	26	4.1%	12.4%	19.6%	21.6%	15.5%	26.8%
7	2,178	568	27	1.2%	4.8%	2	6	1	6	5	6	7.4%	22.2%	3.7%	22.2%	18.5%	22.2%
8	2,224	703	83	3.7%	11.8%	5	10	13	15	16	23	6.0%	12.0%	15.7%	18.1%	19.3%	27.7%
9	2,213	623	45	2.0%	7.2%	1	7	9	11	6	11	2.2%	15.6%	20.0%	24.4%	13.3%	24.4%
10	2,283	488	18	0.8%	3.7%	0	2	5	1	8	2	0.0%	11.1%	27.8%	5.6%	44.4%	11.1%
11	2,411	628	39	1.6%	6.2%	1	8	6	12	8	4	2.6%	20.5%	15.4%	30.8%	20.5%	10.3%
12	2,659	815	74	2.8%	9.1%	4	10	13	20	14	13	5.4%	13.5%	17.6%	27.0%	18.9%	17.6%
13	2,341	724	122	5.2%	16.9%	11	24	26	17	24	19	9.0%	19.7%	21.3%	13.9%	19.7%	15.6%
14	2,429	687	95	3.9%	13.8%	6	17	17	14	22	19	6.3%	17.9%	17.9%	14.7%	23.2%	20.0%
15	2,419	655	81	3.3%	12.4%	2	15	11	24	14	10	2.5%	18.5%	13.6%	29.6%	17.3%	12.3%
16	1,971	791	54	2.7%	6.8%	3	8	15	14	5	7	5.6%	14.8%	27.8%	25.9%	9.3%	13.0%
Total	36,285	10,473	1,025	2.8%	9.8%	55	165	187	218	186	199	5.4%	16.1%	18.2%	21.3%	18.1%	19.4%
Survey Monkey		10,743	1,284		12.0%	71	213	232	284	236	248	5.5%	16.6%	18.1%	22.1%	18.4%	19.3%

Question 4 Numbers

Q4: Please rate the following possible benefits of leaf blowers for you. Check all that apply. Very Important; Moderately Important; Not Important.																	
Precinct	2016	2015	Responses	Response	Response	Speed Importance			Labor Savings Importance			Cleanliness Importance			Safety Importance		
	Registered	Voter Turnout		Rate/Reg	Rate	Not	Moderately	Very	Not	Moderately	Very	Not	Moderately	Very	Not	Moderately	Very
1	2,173	554	77	3.5%	13.9%	26	15	34	22	18	37	24	17	35	24	21	31
2	1,694	366	32	1.9%	8.7%	11	9	9	8	12	9	6	14	10	4	14	12
3	2,345	640	54	2.3%	8.4%	29	13	10	28	8	16	25	12	13	25	11	13
4	2,106	536	44	2.1%	8.2%	18	8	15	18	8	15	18	7	16	21	5	13
5	2,493	822	83	3.3%	10.1%	35	12	33	35	10	34	32	16	31	36	10	32
6	2,346	873	97	4.1%	11.1%	41	19	33	40	20	35	43	18	34	43	19	32
7	2,178	568	27	1.2%	4.8%	8	9	8	9	6	9	12	2	11	10	4	10
8	2,224	703	83	3.7%	11.8%	29	20	31	30	21	30	29	21	31	26	21	34
9	2,213	623	45	2.0%	7.2%	21	11	10	20	8	14	20	9	13	23	7	12
10	2,283	488	18	0.8%	3.7%	7	2	7	6	3	7	7	2	7	8	2	6
11	2,411	628	39	1.6%	6.2%	14	7	15	13	7	15	15	7	13	19	5	11
12	2,659	815	74	2.8%	9.1%	23	19	31	27	16	29	25	9	37	25	16	29
13	2,341	724	122	5.2%	16.9%	34	28	55	31	21	66	36	16	66	44	20	53
14	2,429	687	95	3.9%	13.8%	22	12	60	22	8	63	22	9	63	26	21	46
15	2,419	655	81	3.3%	12.4%	14	4	62	15	5	60	16	5	58	17	13	48
16	1,971	791	54	2.7%	6.8%	8	12	34	10	9	35	11	9	34	14	8	31
Total	36,285	10,473	1,025	2.8%	9.8%	340	200	447	334	180	474	341	173	472	365	197	413
Survey Monkey		10,743	1,261		11.7%	422	242	597	412	225	623	421	217	617	446	249	546

Question 4 Percentages

Q4: Please rate the following possible benefits of leaf blowers for you. Check all that apply.						Very Important			Moderately Important			Not Important								
Precinct	2016 Registered	2015 Voter Turnout	Responses	Response Rate/Reg	Response Rate	Speed Importance			Labor Savings Importance			Cleanliness Importance			Safety Importance					
						Not	Moderately	Very	Not	Moderately	Very	Not	Moderately	Very	Not	Moderately	Very			
1	2,173	554	77	3.5%	13.9%	33.8%	19.5%	44.2%	28.6%	23.4%	48.1%	31.2%	22.1%	45.5%	31.2%	27.3%	40.3%			
2	1,694	366	32	1.9%	8.7%	34.4%	28.1%	28.1%	25.0%	37.5%	28.1%	18.8%	43.8%	31.3%	12.5%	43.8%	37.5%			
3	2,345	640	54	2.3%	8.4%	53.7%	24.1%	18.5%	51.9%	14.8%	29.6%	46.3%	22.2%	24.1%	46.3%	20.4%	24.1%			
4	2,106	536	44	2.1%	8.2%	40.9%	18.2%	34.1%	40.9%	18.2%	34.1%	40.9%	15.9%	36.4%	47.7%	11.4%	29.5%			
5	2,493	822	83	3.3%	10.1%	42.2%	14.5%	39.0%	42.2%	12.0%	41.0%	38.6%	19.3%	37.3%	43.4%	12.0%	38.6%			
6	2,346	873	97	4.1%	11.1%	42.3%	19.6%	34.0%	41.2%	20.6%	36.1%	44.3%	18.6%	35.1%	44.3%	19.6%	33.0%			
7	2,178	568	27	1.2%	4.8%	29.6%	33.3%	29.6%	33.3%	22.2%	33.3%	44.4%	7.4%	40.7%	37.0%	14.8%	37.0%			
8	2,224	703	83	3.7%	11.8%	34.9%	24.1%	37.3%	36.1%	25.3%	36.1%	34.9%	25.3%	37.3%	31.3%	25.3%	41.0%			
9	2,213	623	45	2.0%	7.2%	46.7%	24.4%	22.2%	44.4%	17.8%	31.1%	44.4%	20.0%	28.9%	51.1%	15.6%	26.7%			
10	2,283	488	18	0.8%	3.7%	38.9%	11.1%	38.9%	33.3%	16.7%	38.9%	38.9%	11.1%	38.9%	44.4%	11.1%	33.3%			
11	2,411	628	39	1.6%	6.2%	35.9%	17.9%	38.5%	33.3%	17.9%	38.5%	38.5%	17.9%	33.3%	48.7%	12.8%	28.2%			
12	2,659	815	74	2.8%	9.1%	31.1%	25.7%	41.9%	36.5%	21.6%	39.2%	33.8%	12.2%	50.0%	33.8%	21.6%	39.2%			
13	2,341	724	122	5.2%	16.9%	27.9%	23.0%	45.1%	25.4%	17.2%	54.1%	29.5%	13.1%	54.1%	36.1%	16.4%	43.4%			
14	2,429	687	95	3.9%	13.8%	23.2%	12.6%	63.2%	23.2%	8.4%	66.3%	23.2%	9.5%	66.3%	27.4%	22.1%	48.4%			
15	2,419	655	81	3.3%	12.4%	17.3%	4.9%	76.5%	18.5%	6.2%	74.1%	19.8%	6.2%	71.6%	21.0%	16.0%	59.3%			
16	1,971	791	54	2.7%	6.8%	14.8%	22.2%	63.0%	18.5%	16.7%	64.8%	20.4%	16.7%	63.0%	25.9%	14.8%	57.4%			
Total	36,285	10,473	1,025	2.8%	9.8%	33.2%	19.5%	43.6%	32.6%	17.6%	46.2%	33.3%	16.9%	46.0%	35.6%	19.2%	40.3%			
Survey Monkey		10,743	1,261		11.7%	33.5%	19.2%	47.3%	32.7%	17.8%	49.4%	33.4%	17.2%	48.9%	35.4%	19.7%	43.3%			

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Question 5 Numbers

Q5: Please rate the following possible impacts of leaf blowers on you. Check all that apply. Very Important Moderately Important Not Important																					
Precinct	2016		2015	Responses	Response Rate/Reg	Response Rate	Noise Importance			Air Quality Importance			Health Importance			Misuse Importance					
	Registered	Yoter Turnout					Not	Moderately	Very	Not	Moderately	Very	Not	Moderately	Very	Not	Moderately	Very	Not	Moderately	Very
1	2,173	554		77	3.5%	13.9%	23	29	24	31	18	26	32	18	22	31	17	24			
2	1,694	366		32	1.9%	8.7%	4	10	18	6	13	13	8	8	15	8	11	10			
3	2,345	640		54	2.3%	8.4%	10	13	30	8	10	33	10	14	25	22	13	14			
4	2,106	536		44	2.1%	8.2%	13	14	16	14	15	14	15	15	13	9	22	9			
5	2,493	822		83	3.3%	10.1%	19	19	44	20	23	36	27	19	34	25	28	24			
6	2,346	873		97	4.1%	11.1%	22	30	44	27	30	38	30	29	34	33	33	30			
7	2,178	568		27	1.2%	4.8%	7	5	14	7	7	11	7	8	10	8	7	10			
8	2,224	703		83	3.7%	11.8%	24	22	37	22	27	34	22	25	34	29	22	29			
9	2,213	623		45	2.0%	7.2%	6	17	21	12	13	19	13	12	18	12	15	17			
10	2,283	488		18	0.8%	3.7%	5	4	9	6	3	9	6	3	9	9	5	4			
11	2,411	628		39	1.6%	6.2%	6	10	22	12	7	19	12	11	13	11	10	14			
12	2,659	815		74	2.8%	9.1%	15	21	37	22	23	29	25	25	24	25	25	23			
13	2,341	724		122	5.2%	16.9%	37	34	50	48	36	36	55	28	36	48	39	29			
14	2,429	687		95	3.9%	13.8%	37	34	24	43	31	21	50	26	19	37	37	21			
15	2,419	655		81	3.3%	12.4%	41	18	22	38	23	19	43	19	18	31	30	17			
16	1,971	791		54	2.7%	6.8%	26	12	15	17	18	17	20	17	14	12	15	24			
Total	36,285	10,473		1,025	2.8%	9.8%	295	292	427	333	297	374	375	277	338	350	329	299			
Survey Monkey		10,743		1,296		12.1%	393	365	538	426	383	478	489	351	430	453	403	403			

Question 5 Percentages

Q5: Please rate the following possible impacts of leaf blowers on you. Check all that apply. Very Important Moderately Important Not Important																					
Precinct	2016		2015	Responses	Response Rate/Reg	Response Rate	Noise Importance			Air Quality Importance			Health Importance			Misuse Importance					
	Registered	Yoter Turnout					Not	Moderately	Very	Not	Moderately	Very	Not	Moderately	Very	Not	Moderately	Very	Not	Moderately	Very
1	2,173	554		77	3.5%	13.9%	29.9%	37.7%	31.2%	40.3%	23.4%	33.8%	41.6%	23.4%	28.6%	40.3%	22.1%	31.2%			
2	1,694	366		32	1.9%	8.7%	12.5%	31.3%	56.3%	18.8%	40.6%	40.6%	25.0%	25.0%	46.9%	25.0%	34.4%	31.3%			
3	2,345	640		54	2.3%	8.4%	18.5%	24.1%	55.6%	14.8%	18.5%	61.1%	18.5%	25.9%	46.3%	40.7%	24.1%	25.9%			
4	2,106	536		44	2.1%	8.2%	29.5%	31.8%	36.4%	31.8%	34.1%	31.8%	34.1%	34.1%	29.5%	20.5%	50.0%	20.5%			
5	2,493	822		83	3.3%	10.1%	22.9%	22.9%	53.0%	24.1%	27.7%	43.4%	32.5%	22.9%	41.0%	30.1%	33.7%	28.9%			
6	2,346	873		97	4.1%	11.1%	22.7%	30.9%	45.4%	27.8%	30.9%	39.2%	30.9%	29.9%	35.1%	34.0%	34.0%	30.9%			
7	2,178	568		27	1.2%	4.8%	25.9%	18.5%	51.9%	25.9%	25.9%	40.7%	25.9%	29.6%	37.0%	29.6%	25.9%	37.0%			
8	2,224	703		83	3.7%	11.8%	28.9%	26.5%	44.6%	26.5%	32.5%	41.0%	26.5%	30.1%	41.0%	34.9%	26.5%	34.9%			
9	2,213	623		45	2.0%	7.2%	13.3%	37.8%	46.7%	26.7%	28.9%	42.2%	28.9%	26.7%	40.0%	26.7%	33.3%	37.8%			
10	2,283	488		18	0.8%	3.7%	27.8%	22.2%	50.0%	33.3%	16.7%	50.0%	33.3%	16.7%	50.0%	50.0%	27.8%	22.2%			
11	2,411	628		39	1.6%	6.2%	15.4%	25.6%	56.4%	30.8%	17.9%	48.7%	30.8%	28.2%	33.3%	28.2%	25.6%	35.9%			
12	2,659	815		74	2.8%	9.1%	20.3%	28.4%	50.0%	29.7%	31.1%	39.2%	33.8%	33.8%	32.4%	33.8%	33.8%	31.1%			
13	2,341	724		122	5.2%	16.9%	30.3%	27.9%	41.0%	39.3%	29.5%	29.5%	45.1%	23.0%	29.5%	39.3%	32.0%	23.8%			
14	2,429	687		95	3.9%	13.8%	38.9%	35.8%	25.3%	45.3%	32.6%	22.1%	52.6%	27.4%	20.0%	38.9%	38.9%	22.1%			
15	2,419	655		81	3.3%	12.4%	50.6%	22.2%	27.2%	46.9%	28.4%	23.5%	53.1%	23.5%	22.2%	38.3%	37.0%	21.0%			
16	1,971	791		54	2.7%	6.8%	48.1%	22.2%	27.8%	31.5%	33.3%	31.5%	37.0%	31.5%	25.9%	22.2%	27.8%	44.4%			
Total	36,285	10,473		1,025	2.8%	9.8%	28.8%	28.5%	41.7%	32.5%	29.0%	36.5%	36.6%	27.0%	33.0%	34.1%	32.1%	29.2%			
Survey Monkey		10,743		1,296		12.1%	30.3%	28.2%	41.5%	32.9%	29.6%	36.9%	37.7%	27.1%	33.2%	35.0%	31.1%	31.1%			

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Question 6

Q6: Are you aware of the current restrictions on leaf blowers in Brookline?									
Precinct	2016 Registered	2015 Voter Turnout*	Responses	Response Rate/Reg	Response Rate	Yes	No	% Yes	% No
1	2,173	554	77	3.5%	13.9%	51	26	66.2%	33.8%
2	1,694	366	32	1.9%	8.7%	24	8	75.0%	25.0%
3	2,345	640	54	2.3%	8.4%	36	18	66.7%	33.3%
4	2,106	536	44	2.1%	8.2%	28	16	63.6%	36.4%
5	2,493	822	83	3.3%	10.1%	68	14	81.9%	16.9%
6	2,346	873	97	4.1%	11.1%	73	24	75.3%	24.7%
7	2,178	568	27	1.2%	4.8%	19	8	70.4%	29.6%
8	2,224	703	83	3.7%	11.8%	63	19	75.9%	22.9%
9	2,213	623	45	2.0%	7.2%	32	11	71.1%	24.4%
10	2,283	488	18	0.8%	3.7%	15	3	83.3%	16.7%
11	2,411	628	39	1.6%	6.2%	33	6	84.6%	15.4%
12	2,659	815	74	2.8%	9.1%	60	14	81.1%	18.9%
13	2,341	724	122	5.2%	16.9%	95	27	77.9%	22.1%
14	2,429	687	95	3.9%	13.8%	81	14	85.3%	14.7%
15	2,419	655	81	3.3%	12.4%	67	14	82.7%	17.3%
16	1,971	791	54	2.7%	6.8%	47	7	87.0%	13.0%
Total	36,285	10,473	1,025	2.8%	9.8%	792	229	77.3%	22.3%
Survey									
Monkey		10,743	1,304		12.1%	1010	294	77.5%	22.5%

Question 7

Q7: Perceived misuse of leaf blowers in Brookline is part of the problem. How important will additional education directed at landscapers and home users be in mitigating this part of the issue?													
Precinct	2016 Registered	2015 Voter Turnout*	Responses	Response Rate/Reg	Response Rate	Not Important	Slightly Important	Moderately Important	Extremely Important	% Not Important	% Slightly Important	% Moderately Important	% Extremely Important
1	2,173	554	77	3.5%	13.9%	4	16	29	25	5.2%	20.8%	37.7%	32.5%
2	1,694	366	32	1.9%	8.7%	3	0	10	18	9.4%	0.0%	31.3%	56.3%
3	2,345	640	54	2.3%	8.4%	4	8	16	24	7.4%	14.8%	29.6%	44.4%
4	2,106	536	44	2.1%	8.2%	2	7	20	14	4.5%	15.9%	45.5%	31.8%
5	2,493	822	83	3.3%	10.1%	2	6	31	43	2.4%	7.2%	37.3%	51.8%
6	2,346	873	97	4.1%	11.1%	14	14	37	32	14.4%	14.4%	38.1%	33.0%
7	2,178	568	27	1.2%	4.8%	5	4	9	8	18.5%	14.8%	33.3%	29.6%
8	2,224	703	83	3.7%	11.8%	13	18	24	28	15.7%	21.7%	28.9%	33.7%
9	2,213	623	45	2.0%	7.2%	6	7	15	17	13.3%	15.6%	33.3%	37.8%
10	2,283	488	18	0.8%	3.7%	3	5	8	2	16.7%	27.8%	44.4%	11.1%
11	2,411	628	39	1.6%	6.2%	2	11	10	15	5.1%	28.2%	25.6%	38.5%
12	2,659	815	74	2.8%	9.1%	5	10	19	39	6.8%	13.5%	25.7%	52.7%
13	2,341	724	122	5.2%	16.9%	12	22	36	48	9.8%	18.0%	29.5%	39.3%
14	2,429	687	95	3.9%	13.8%	7	14	36	38	7.4%	14.7%	37.9%	40.0%
15	2,419	655	81	3.3%	12.4%	15	9	24	32	18.5%	11.1%	29.6%	39.5%
16	1,971	791	54	2.7%	6.8%	9	10	17	17	16.7%	18.5%	31.5%	31.5%
Total	36,285	10,473	1,025	2.8%	9.8%	106	161	341	400	10.3%	15.7%	33.3%	39.0%
Survey													
Monkey		10,743	1,286		12.0%	500	431	215	140	38.9%	33.5%	16.7%	10.9%

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Question 8

Q8: Are you in favor of a complete year round ban on gas-powered leaf blowers in Brookline?											
Precinct	2016 Registered	2015 Voter Turnout	Responses	Response Rate/Reg	Response Rate	Ban	No Ban	Not Sure	% Ban	% No Ban	% Not Sure
1	2,173	554	77	3.5%	13.9%	21	48	8	27.3%	62.3%	10.4%
2	1,694	366	32	1.9%	8.7%	9	15	8	28.1%	46.9%	25.0%
3	2,345	640	54	2.3%	8.4%	20	23	11	37.0%	42.6%	20.4%
4	2,106	536	44	2.1%	8.2%	12	26	6	27.3%	59.1%	13.6%
5	2,493	822	83	3.3%	10.1%	27	47	9	32.5%	56.6%	10.8%
6	2,346	873	97	4.1%	11.1%	32	48	17	33.0%	49.5%	17.5%
7	2,178	568	27	1.2%	4.8%	10	13	4	37.0%	48.1%	14.8%
8	2,224	703	83	3.7%	11.8%	28	38	17	33.7%	45.8%	20.5%
9	2,213	623	45	2.0%	7.2%	18	21	6	40.0%	46.7%	13.3%
10	2,283	488	18	0.8%	3.7%	6	8	4	33.3%	44.4%	22.2%
11	2,411	628	39	1.6%	6.2%	13	20	6	33.3%	51.3%	15.4%
12	2,659	815	74	2.8%	9.1%	27	38	9	36.5%	51.4%	12.2%
13	2,341	724	122	5.2%	16.9%	28	80	14	23.0%	65.6%	11.5%
14	2,429	687	95	3.9%	13.8%	17	68	9	17.9%	71.6%	9.5%
15	2,419	655	81	3.3%	12.4%	13	61	7	16.0%	75.3%	8.6%
16	1,971	791	54	2.7%	6.8%	12	36	6	22.2%	66.7%	11.1%
Total	36,285	10,473	1,025	2.8%	9.8%	293	590	141	28.6%	57.6%	13.8%
Survey Monkey		10,743	1,302		12.1%	360	764	178	27.6%	58.7%	13.7%

Question 9

Q9: Currently, the Town and large landowners are exempt from the existing restrictions. If gas-powered leaf blowers were to be completely banned in Brookline, should the following be exempt?															
Precinct	2016 Registered	2015 Voter Turnout	Responses	Response Rate/Reg	Response Rate	Town	Large Areas	Institutions	No Exemptions	Case By Case	Town	Large Areas	Institutions	No Exemptions	Case By Case
1	2,173	554	77	3.5%	13.9%	30	27	21	30	14	39.0%	35.1%	27.3%	39.0%	18.2%
2	1,694	366	32	1.9%	8.7%	11	10	9	13	10	34.4%	31.3%	28.1%	40.6%	31.3%
3	2,345	640	54	2.3%	8.4%	18	17	12	20	14	33.3%	31.5%	22.2%	37.0%	25.9%
4	2,106	536	44	2.1%	8.2%	15	12	10	20	10	34.1%	27.3%	22.7%	45.5%	22.7%
5	2,493	822	83	3.3%	10.1%	28	22	21	33	17	33.7%	26.5%	25.3%	39.6%	20.5%
6	2,346	873	97	4.1%	11.1%	37	33	27	34	32	38.1%	34.0%	27.8%	35.1%	33.0%
7	2,178	568	27	1.2%	4.8%	7	7	3	13	6	25.9%	25.9%	11.1%	48.1%	22.2%
8	2,224	703	83	3.7%	11.8%	22	23	16	35	17	26.5%	27.7%	19.3%	42.2%	20.5%
9	2,213	623	45	2.0%	7.2%	16	16	11	18	15	35.6%	35.6%	24.4%	40.0%	33.3%
10	2,283	488	18	0.8%	3.7%	5	5	5	9	3	27.8%	27.8%	27.8%	50.0%	16.7%
11	2,411	628	39	1.6%	6.2%	16	14	12	13	11	41.0%	35.9%	30.8%	33.3%	28.2%
12	2,659	815	74	2.8%	9.1%	20	17	11	30	21	27.0%	23.0%	14.9%	40.5%	28.4%
13	2,341	724	122	5.2%	16.9%	38	34	29	53	28	31.1%	27.9%	23.8%	43.4%	23.0%
14	2,429	687	95	3.9%	13.8%	35	33	31	37	23	36.6%	34.7%	32.6%	38.9%	24.2%
15	2,419	655	81	3.3%	12.4%	29	21	21	26	22	35.8%	25.9%	25.9%	32.1%	27.2%
16	1,971	791	54	2.7%	6.8%	20	17	12	21	16	37.0%	31.5%	22.2%	38.9%	29.6%
Total	36,285	10,473	1,025	2.8%	9.8%	347	308	251	405	259	33.9%	30.0%	24.5%	39.5%	25.3%
Survey Monkey		10,743	1,280		11.9%	446	395	322	528	312	34.8%	30.9%	25.2%	41.3%	24.4%

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Question 10

Q10: <u>Brookline</u> presently restricts the use of gas leaf blowers to two seasons in the year (spring and fall) and also the noise level for all leaf blower machines, gas and electric. Are you satisfied with these current restrictions on leaf blowers?										
Precinct	2016 Registered	2015 Voter Turnout*	Responses	Response Rate/Reg	Response Rate	Yes	No	% Yes	% No	Satisfied/ Dissatisfied
1	2,173	554	77	3.5%	13.9%	41	34	53.2%	44.2%	S
2	1,694	366	32	1.9%	8.7%	12	19	37.5%	59.4%	D
3	2,345	640	54	2.3%	8.4%	21	33	38.9%	61.1%	D
4	2,106	536	44	2.1%	8.2%	28	14	63.6%	31.8%	S
5	2,493	822	83	3.3%	10.1%	41	39	49.4%	47.0%	~S
6	2,346	873	97	4.1%	11.1%	51	44	52.6%	45.4%	S
7	2,178	568	27	1.2%	4.8%	11	14	40.7%	51.9%	D
8	2,224	703	83	3.7%	11.8%	40	41	48.2%	49.4%	~D
9	2,213	623	45	2.0%	7.2%	21	23	46.7%	51.1%	D
10	2,283	488	18	0.8%	3.7%	9	8	50.0%	44.4%	S
11	2,411	628	39	1.6%	6.2%	19	18	48.7%	46.2%	~S
12	2,659	815	74	2.8%	9.1%	34	39	45.9%	52.7%	D
13	2,341	724	122	5.2%	16.9%	72	48	59.0%	39.3%	S
14	2,429	687	95	3.9%	13.8%	51	41	53.7%	43.2%	S
15	2,419	655	81	3.3%	12.4%	45	34	55.6%	42.0%	S
16	1,971	791	54	2.7%	6.8%	23	31	42.6%	57.4%	D
Total	36,285	10,473	1,025	2.8%	9.8%	519	480	50.6%	46.8%	S
Survey Monkey		10,743	1,268		11.8%	651	617	51.3%	48.7%	S

Question 11

Q11: Are you in favor of additional restrictions on leaf blowers in <u>Brookline</u> ?										
Precinct	2016 Registered	2015 Voter Turnout*	Responses	Response Rate/Reg	Response Rate	Yes	No	% Yes	% No	More No More
1	2,173	554	77	3.5%	13.9%	29	46	37.7%	59.7%	N
2	1,694	366	32	1.9%	8.7%	16	14	50.0%	43.8%	M
3	2,345	640	54	2.3%	8.4%	30	18	55.6%	33.3%	M
4	2,106	536	44	2.1%	8.2%	15	23	34.1%	52.3%	N
5	2,493	822	83	3.3%	10.1%	35	44	42.2%	53.0%	N
6	2,346	873	97	4.1%	11.1%	34	57	35.1%	58.8%	N
7	2,178	568	27	1.2%	4.8%	15	10	55.6%	37.0%	M
8	2,224	703	83	3.7%	11.8%	36	43	43.4%	51.8%	N
9	2,213	623	45	2.0%	7.2%	22	22	48.9%	48.9%	-
10	2,283	488	18	0.8%	3.7%	7	9	38.9%	50.0%	N
11	2,411	628	39	1.6%	6.2%	18	21	46.2%	53.8%	N
12	2,659	815	74	2.8%	9.1%	35	38	47.3%	51.4%	N
13	2,341	724	122	5.2%	16.9%	37	81	30.3%	66.4%	N
14	2,429	687	95	3.9%	13.8%	26	65	27.4%	68.4%	N
15	2,419	655	81	3.3%	12.4%	16	60	19.8%	74.1%	N
16	1,971	791	54	2.7%	6.8%	13	41	24.1%	75.9%	N
Total	36,285	10,473	1,025	2.8%	9.8%	384	592	37.5%	57.8%	N
Survey Monkey		10,743	1,268		11.8%	651	617	51.3%	48.7%	N

Moderator's Committee on Leaf Blowers
Final Report of the Committee

Question 12

Q12: How concerned are you about the use of leaf blowers, particularly in performing spring and fall clean-up?												
Precinct	2016 Registered	2015 Voter Turnout	Responses	Response Rate/Reg	Response Rate	Not Concerned	Moderately Concerned	Very Concerned	% Not	% Moderately	% Very	
1	2,173	554	77	3.5%	13.9%	40	20	17	51.9%	26.0%	22.1%	
2	1,694	366	32	1.9%	8.7%	8	13	11	25.0%	40.6%	34.4%	
3	2,345	640	54	2.3%	8.4%	13	26	13	24.1%	48.1%	24.1%	
4	2,106	536	44	2.1%	8.2%	20	16	8	45.5%	36.4%	18.2%	
5	2,493	822	83	3.3%	10.1%	38	20	24	45.8%	24.1%	28.9%	
6	2,346	873	97	4.1%	11.1%	45	29	22	46.4%	29.9%	22.7%	
7	2,178	568	27	1.2%	4.8%	7	9	10	25.9%	33.3%	37.0%	
8	2,224	703	83	3.7%	11.8%	38	20	24	45.8%	24.1%	28.9%	
9	2,213	623	45	2.0%	7.2%	16	16	13	35.6%	35.6%	28.9%	
10	2,283	488	18	0.8%	3.7%	10	3	5	55.6%	16.7%	27.8%	
11	2,411	628	39	1.6%	6.2%	16	14	7	41.0%	35.9%	17.9%	
12	2,659	815	74	2.8%	9.1%	26	25	22	35.1%	33.8%	29.7%	
13	2,341	724	122	5.2%	16.9%	69	23	30	56.6%	18.9%	24.6%	
14	2,429	687	95	3.9%	13.8%	52	17	24	54.7%	17.9%	25.3%	
15	2,419	655	81	3.3%	12.4%	48	15	18	59.3%	18.5%	22.2%	
16	1,971	791	54	2.7%	6.8%	32	8	12	59.3%	14.8%	22.2%	
Total	36,285	10,473	1,025	2.8%	9.8%	478	274	260	46.6%	26.7%	25.4%	
Survey Monkey		10,743	1,292		12.0%	617	338	337	47.8%	26.2%	26.1%	

Question 13

Q13: If usage best practices are implemented through user education, how effective do you think this will be in reducing your overall concerns (if any) of leaf blower usage?															
Precinct	2016 Registered	2015 Voter Turnout	Responses	Response Rate/Reg	Response Rate	Not Effective	Slightly Effective	Moderately Effective	Extremely Effective	Not Applicable	% Not Effective	% Slightly Effective	% Moderately Effective	% Extremely Effective	% Not Applicable
1	2,173	554	77	3.5%	13.9%	8	22	22	15	9	10.4%	28.6%	28.6%	19.5%	11.7%
2	1,694	366	32	1.9%	8.7%	2	9	10	5	4	6.3%	28.1%	31.3%	15.6%	12.5%
3	2,345	640	54	2.3%	8.4%	10	17	17	4	4	18.5%	31.5%	31.5%	7.4%	7.4%
4	2,106	536	44	2.1%	8.2%	10	7	11	12	4	22.7%	15.9%	25.0%	27.3%	9.1%
5	2,493	822	83	3.3%	10.1%	10	21	26	15	9	12.0%	25.3%	31.3%	18.1%	10.8%
6	2,346	873	97	4.1%	11.1%	18	22	26	13	17	18.6%	22.7%	26.8%	13.4%	17.5%
7	2,178	568	27	1.2%	4.8%	6	10	5	2	1	22.2%	37.0%	18.5%	7.4%	3.7%
8	2,224	703	83	3.7%	11.8%	17	17	25	10	12	20.5%	20.5%	30.1%	12.0%	14.5%
9	2,213	623	45	2.0%	7.2%	8	11	14	4	7	17.8%	24.4%	31.1%	8.9%	15.6%
10	2,283	488	18	0.8%	3.7%	3	6	1	2	6	16.7%	33.3%	5.6%	11.1%	33.3%
11	2,411	628	39	1.6%	6.2%	7	6	11	9	5	17.9%	15.4%	28.2%	23.1%	12.8%
12	2,659	815	74	2.8%	9.1%	15	18	24	9	6	20.3%	24.3%	32.4%	12.2%	8.1%
13	2,341	724	122	5.2%	16.9%	25	24	30	21	19	20.5%	19.7%	24.6%	17.2%	15.6%
14	2,429	687	95	3.9%	13.8%	15	17	24	19	17	15.8%	17.9%	25.3%	20.0%	17.9%
15	2,419	655	81	3.3%	12.4%	12	14	16	17	21	14.8%	17.3%	19.6%	21.0%	25.9%
16	1,971	791	54	2.7%	6.8%	13	12	12	7	7	24.1%	22.2%	22.2%	13.0%	13.0%
Total	36,285	10,473	1,025	2.8%	9.8%	179	233	274	164	148	17.5%	22.7%	26.7%	16.0%	14.4%
Survey Monkey		10,743	1,276		11.9%	194	354	300	230	198	15.2%	27.7%	23.5%	18.0%	15.5%

Appendix 3

Leaf Blower Demonstration Test Event – Larz Anderson Park

The Committee with the help of the Parks and Open Spaces Department selected a number of leaf blower gas and electric powered with different power and noise levels. In addition, the Stihl Company loaned a just available electric battery powered model. The models with the manufacturers' specs for sound level (as per the ANSI standard measured at 50 feet):

Make/Model	dBa Level	Type
Redmax 8500	77	Gas
Stihl BR 600	75	Gas
Toro Corded	68	Elec.Cord
Stihl BG 66L	65	Gas
Stihl BR 500	65	Gas
Echo PB760	65	Gas
Stihl BGA 100	56	Battery



The electricity powered Toro was corded and the Stihl BGA 100, a brand new device just available on the market in the USA, had a back-pack battery which gives between 25 and 120 minutes of operation (manufacturer spec), depending on the power level.

The tests devised included:

- A single-blind noise evaluation of the 7 different leaf blowers, 5 gas and 2 electric models, in which committee members stood with backs turned while DPW staff ran each leaf blower for 30 seconds. Subjective impressions were recorded by each member.
- A test in which an operator was given a fixed amount of time to use each leaf blower to clear a delineated swath of lawn. Committee members were free to move about to assess the sonic qualities. At the end of each test the DPW recorded the amount of leaves moved during the test period.
- A test in which two leaf blowers were operated simultaneously for a period and then each was independently stopped so that the committee could assess the sound impact of combining multiple leaf blowers.
- A test of leaf cleaning from a length of hedge for 6 different blowers.
- A demonstration of a mulching mower.

Test Squares of Leaves



The Committee rated the machines sound on two criteria: noise level and pitch to come up with a combined sound rating. The Committee's ratings are as follows (1 being the most acceptable, 7 being the least):

	Av. Score	dBa Level	Ranking
Stihl BGA 100	1.5	56	1
Echo PB760	2.6	65	2
Stihl BG 66L	2.7	65	3
Stihl BR 500	2.9	65	4
Toro Corded	3.1	68	5
Stihl BR 600	3.8	75	6
Redmax 8500	4.3	77	7

In terms of clearing speed, except for the Toro which performed quite poorly, the amounts cleared were related to the power/noise of the machine.

TEST 2 - SPEED TEST		
BLOWER	TYPE	BARRELS REMOVED
1	STIHL BGA 100	3*
2	STIHL BG66L	1.5
3	STIHL BR 500	4
4	STIHL BR 600 MAGNUM	4.5
5	REDMAX EBZ8500	6.25
6	ECHO PB760LNH	3.5
7	TORO CORDED ELECTRIC	0.5

* Blower 1 had 4 mins, Blowers 2-7 had 3 mins to clear

So, for example the Redmax (77dBa) cleared 6.25 barrels of leaves in 3 minutes compared to the Echo (65dBa) which cleared 3.5 barrels in the same time. (Note the performance of the BGA 100 is not comparable because of the need to reduce the time for each test from 4 to 3 minutes – see more detailed discussion on the BGA 100 below).

The second test demonstrated the effectiveness and associated sound levels of two blowers working at once clearing the same square. Two tests were done with two paired more powerful louder machines (Redmax and BR600) and two less powerful quieter machines (Echo and BR500). In the same three minute period each pair cleared 6-7 barrels each.

TEST 3 - COMPOUND TEST				Test 3A-Compound Noise Reading	
	BLOWER	TYPE	32 Gal. BARRELS REMOVED	1 Blower	2 Blowers
Test 1	4	STIHL BR 600 MAGNUM	7	70	74
	5	REDMAX EBZ8500		73	74
Test 2	3	STIHL BR 500	6	62	64
	6	ECHO PB760LNH		61	64

So the paired quieter machines cleared at least 50% more than each would have on its own. Whereas for the more powerful machines there was a modest increase compared with just one machine operating.

The Committee then evaluated the perceived sound levels versus the actual sound levels of two machines operating at once compared to a single machine. The science¹ tells us that if both sound sources (machines) are the same distance from a listener then the increase in sound level is about 2 – 3 dBa. So, if there are two 67dBA leaf blowers operating at the same distance from a listener then the listener will be subject to a 69 - 70dBa sound level when both machines operate.

The actual sound levels recorded during the test are shown above on “Test 3A”. The Committee could barely detect any difference in sound level for both pairs. This is due to the fact that the human ear has a hard time distinguishing 2 - 3 dBa².

The next test was the clearing of leaves from a hedgerow and how long each machine took. The results were as follows:

1 https://www.osha.gov/dts/osta/otm/new_noise/appendixb.pdf

2 “Sound studies tell us time and again that a 3dBA increase in sound level is barely noticeable to the human ear.” - <http://www.acousticsbydesign.com/acoustics-blog/perception-vs-reality.htm>

TEST 4 - SHRUB CLEANING		
BLOWER	TYPE	LAND COVERED
1	STIHL BGA 100	14'
2	STIHL BG66L	12'
3	STIHL BR 500	20'
4	STIHL BR 600 MAGNUM	24'
5	REDMAX EBZ8500	24'+
6	ECHO PB760LNH	24'

In general, the more powerful (and noisier) machines cleared much more distance of hedgerow compared to the less powerful, quieter machines. The exception to this was the Echo (65dBa) which performed almost as well as the Redmax (77dBa).

The final demonstration was a mulching mower, which instead of blowing the leaves to be gathered up, shreds the leaves in place and the pieces are left on the grass. The Committee felt that the demonstration was both noisy and dusty. Also both the DPW and landscapers told the Committee that only small amounts of leaves can be handled in this way, as large amounts kill the grass. The Committee does not think that mulching is a replacement for leaf removal.

Electric powered Leaf Blowers

Traditional corded electric powered blowers, almost exclusively used by homeowners rather than landscape companies, are generally less powerful and less noisy than gas powered ones. The limitation is the cord which prevents a more wide spread use.

New battery powered machines are becoming available and the Committee particularly requested of Stihl, a leading manufacturer of electric and gas powered machines, to demonstrate their latest battery powered machine the BGA 100, which they did.

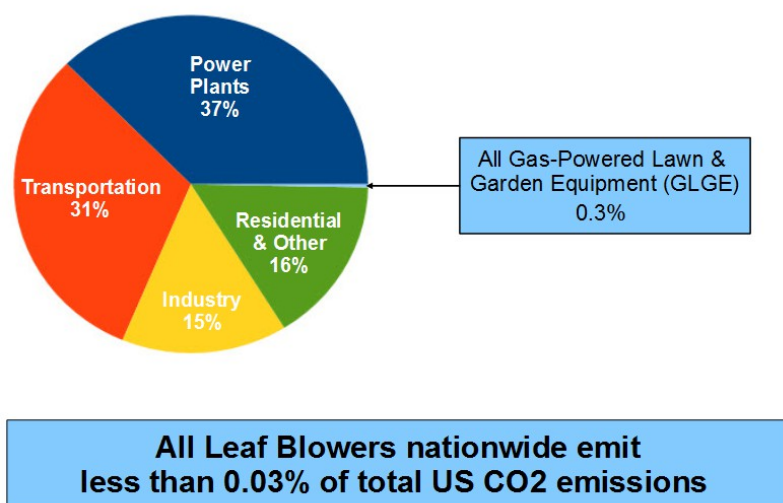
This machine has a back-pack battery which has a charge life of 25 minutes using boost power to 120 minutes using normal power and costs about \$900. It has an impressive noise level of around 56dBA, which is significantly and noticeably lower than all the other machines we had demonstrated.

While this battery is a considerable advance, over currently available battery models, the charge life and the high cost make it prohibitive to a commercial landscaping concern. This will no doubt change in the coming years.

Appendix 4 – Carbon Dioxide (CO₂) Emissions

Carbon dioxide, a green house gas, is emitted by any gasoline burning and by gas powered leaf blowers. From Banks and McConnell, all gas powered lawn and garden equipment accounts for about 0.3% of all US CO₂ emissions. Banks and McConnell also suggest that leaf blowers are about 9% of total lawn and garden equipment emissions. So this suggests that all leaf blowers in the US are responsible for less than 0.03% of all CO₂ emissions.

USA Sources of Climate Change CO₂



Sources: EPA and Banks, McConnell

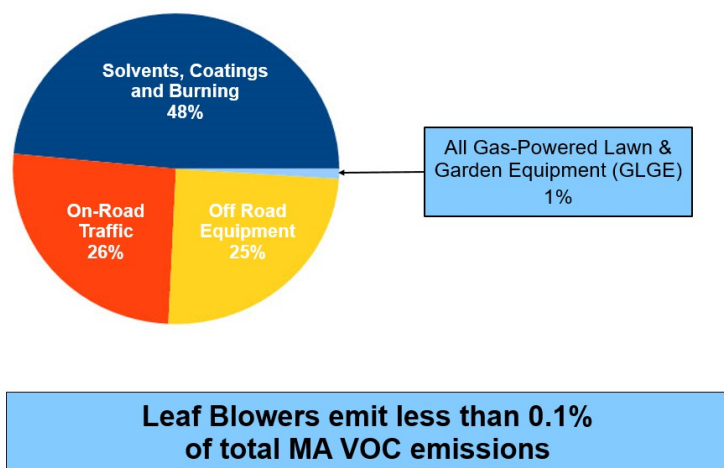
The Committee believes that these emissions, at a national level, are insignificant. At a local level even more so. The Committee concludes that there is no significant impact due to leaf blower emissions of CO₂ on climate change.

Appendix 5 – Volatile Organic Compounds (VOCs)

VOCs, such as benzene and 1,3-butadiene, are emitted not just by burning of gasoline, but by a wide variety of different products used in households and industry, such as solvents, coatings and burning of wood. Just visit a gas station and the typical gasoline “smell” experienced is comprised of VOCs. The gasoline distribution system, for example, is a significant source of VOC's in the environment.

The following chart shows the sources in Massachusetts of VOCs and using Banks and McConnell shows the contribution of lawn and garden equipment and that of leaf blowers

MA Sources of Volatile Emissions
(VOCs)

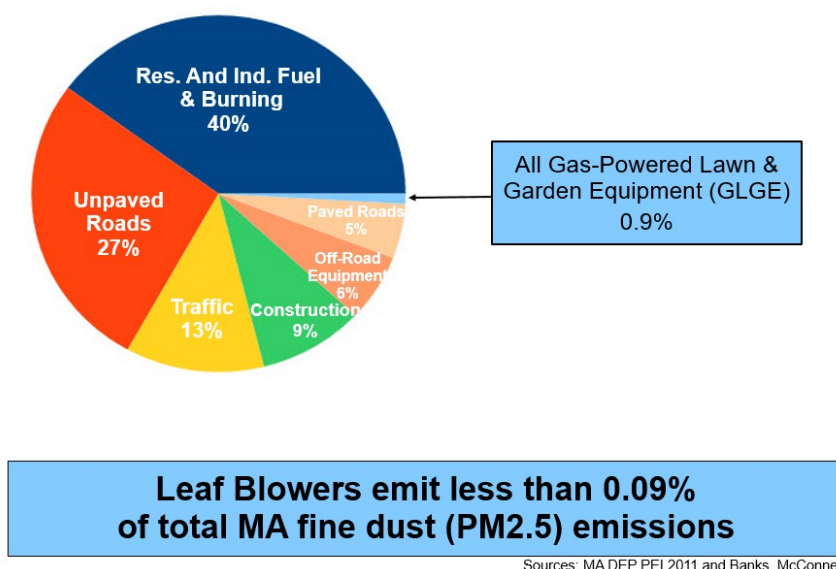


Sources: MA DEP PEI 2011 and Banks, McConnell

Appendix 6 – Fine Dust Emissions (PM_{2.5})

Most dust that can be seen is greater than 10 microns in size (“PM₁₀”) and since it falls to the ground fairly quickly has not been associated greatly with health problems. The EPA and MassDEP track particulate matter that is 2.5 microns or less in size (“PM_{2.5}”) since PM_{2.5} has been associated with disease. Using the MassDEP data and Banks and McConnell, the following chart shows the MA environmental contribution of PM_{2.5} from leaf blowers:

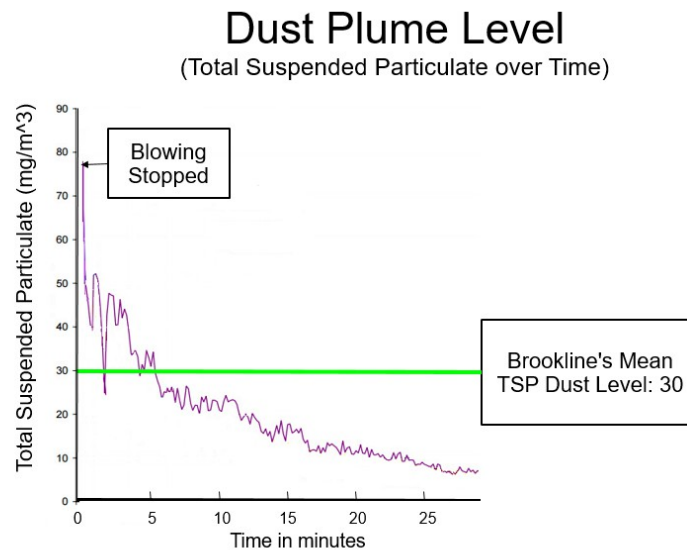
MA Sources of Fine Dust (PM 2.5 microns)



In addition to fine particulate matter, many are concerned about the visible dust plumes (PM₁₀ and greater) generated by all leaf blowers. Leaf blower plumes were specifically studied at the University of Riverside California by Fitz, et al (see Appendix 14).

Fitz studied, in controlled scientific conditions, raking, sweeping, and power leaf blowing concerning dust plumes raised, on different surfaces, such as asphalt, concrete and grass. In general, Fitz found that gas and electric power blowing was equivalent on all surfaces tested. Fitz found that on grass, raking and leaf blowing were equivalent, and that on concrete sweeping and power blowing were equivalent. During the testing the lab team monitored dust plumes and their decay over time generated by leaf blowers. Below is a chart from Fitz's paper showing the dust plume intensity over time measured in Total Suspended Particulate matter (“TSP”) which represents all sizes of dust.

Appendix 7 – Dust (Particulate Matter)



Leaf Blower Dust Plumes are temporary
Plume in test dissipated to our ambient dust level in 5 - 10 minutes

Source: UCR, Fitz et al, usa.com

The standard level of TSP in Brookline (30) has been added to the chart so that as the plume decays i.e. the dust falls to the ground, the chart shows that within 5-10 minutes the plume has dissipated into the background dust level. Fitz also shows that plumes dissipate to background levels over a distance of 20-30 feet, the width of a typical suburban roadway.

Appendix 8 – Brookline Air Quality

First the Committee looked at overall air quality, which measures particulate matter, CO, SO, NOX) in Brookline (see Appendix 10) as measured by the Massachusetts Department of the Environment (“MassDEP”). The EPA's air quality index varies from 0 to 500, with good quality (green) 0-50, moderate quality (yellow) 51-100 and unhealthy to hazardous (orange to maroon) 101-500.

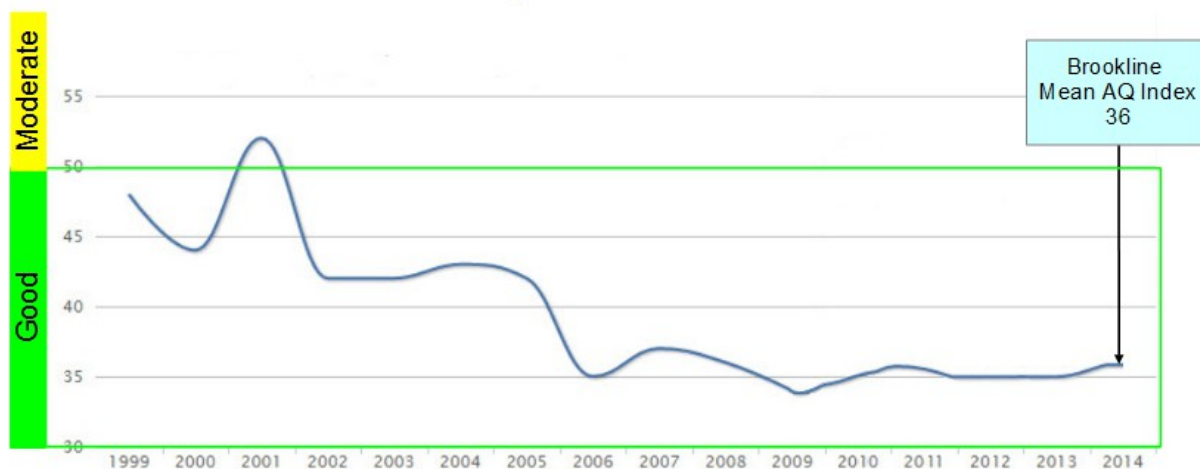
EPA Air Quality Index

Air Quality Index (AQI) Values	Levels of Health Concern	Colors
<i>When the AQI is in this range:</i>	<i>...air quality conditions are:</i>	<i>...as symbolized by this color:</i>
0 to 50	Good	Green
51 to 100	Moderate	Yellow
101 to 150	Unhealthy for Sensitive Groups	Orange
151 to 200	Unhealthy	Red
201 to 300	Very Unhealthy	Purple
301 to 500	Hazardous	Maroon

For Brookline over the past 15 years overall air quality has been consistently “Good” and improving over time to a current mean of 36, “Good”.

Brookline EPA Air Quality Index Rated “Good”

Since 1999 air quality in Brookline has improved
and is among the best in the Nation



It does not appear that leaf blowers are having any major negative impact on Brookline's overall air quality.

Appendix 9 – Advisory Committee on Public Health

The Advisory Council on Public Health (ACPH) convened a public hearing on Tuesday evening, October 6, 2015 at 6:00 pm in the Denny Room of the Public Health building to consider Articles 10 & 11. Article 10 seeks to ban leaf blowers in Brookline; Article 11 seeks to expand the time that leaf blowers may be operated and to provide for emergency waivers of the current leaf blower bylaw.

Prior to the meeting, ACPH, members received a raft of documents provided by proponents and opponents of a ban.

Chairperson Dr. Bruce Cohen began the hearing by emphasizing that the charge of the ACPH was to determine whether or not a sufficient public health threat exists to recommend banning leaf blowers on that basis.

Testimony was taken from Article 10 petitioners Richard Nangle and Irene Schraf, who outlined their concerns, focusing on noise and fugitive dust exposure, to workers who operate leaf blowers, the general population, and high-risk individuals. They both cited a number of studies which had been previously received by Council members, as well as statements by a variety of medical practitioners.

Opponent of a ban included a number of residents, including landscapers and others. Faith Michaels offered a power point presentation that sought to counter the points made by the petitioners, and pointed to statements by the Lincoln and Greenwich, Connecticut Boards of Health, Burlingame, California's regulations, and other Massachusetts municipalities that have declined to ban leaf blowers.

Additional testimony focused on the "unintended consequences" of a ban, which could include less effective clean-ups of leaves and debris leading to increased standing water and proliferation of disease-causing vectors. It was suggested that the increased labor required in the absence of leaf blower could also lead to increases in injuries.

One speaker questioned why, if we are concerned about particulates, we should not ban clothes dryers and wood-burning fireplaces, which generate far greater levels of particulate matter.

Yet another speaker focused on the effect of a less efficient ability to maintain parks and open space leading to a return to what was characterized as "uninviting" open spaces that could have a negative impact on the physical activity options of Brookline residents.

The above represents only a sampling of testimony presented at the hearing.

The Advisory Council, after asking a few questions, including asking the petitioners whether

better enforcement would mitigate at least some of the problems outlined in their presentation.

After listening to 1.5 hours of testimony, having previously reviewed all of the documents presented, the ACPH offered the following:

1. By a 4-0 vote, the Council determined that there is no compelling public health threat posed by leaf blowers to support a ban. It was noted that Town Meeting may find other reasons to ban leaf blowers, but that public health should not be the reason.
2. By a 4-0 vote, the Council said that there was no compelling public health reason to expand the window of time that leaf blowers may operate in town. While Town Meeting may choose to expand the time frame, public health should not be the basis to do so.

The Council did not consider the second part of Article 11 which would all for emergency powers by Town Officials to override the ban, but the sense of the members was that idea made sense. No vote was taken.

3. By a 4-0 vote, the ACPH voted that leaf blowers do present an occupation health threat to workers using them, and urged the Town government to develop (if they don't currently exist) specific policies and procedures to promote the health and safety of Town employees, private landscape contractor employees, and residents who use leaf blowers.

Further, the Council pressed for greater education on the potential risks associated with leaf blower use, and for more stringent enforcement of current Town regulations related to leaf blowers.

Appendix 10 – DPW Letter



Andrew M. Pappastergion
Commissioner

TOWN OF BROOKLINE
Massachusetts
DEPARTMENT OF PUBLIC WORKS

INTEROFFICE MEMORANDUM

To: Board of Selectmen
From: Andrew M. Pappastergion
Date: September 22, 2015
Re: Warrant Article 10 – Leaf Blower Ban
Cc: Melvin Kleckner

In response to Warrant Article 10: *"To see if the town will amend the General By-Laws by amending Article 8.15 and Article 8.31.1 in Part VIII Public Health and Safety as follows, to ban the use of leaf blowers..."*, the following addresses questions regarding the extent to which leaf blowers are used in routine Department of Public Works operations and the level of service and budget implications of the proposed leaf blower ban.

Leaf blowers are an essential tool used by Public Works staff to accomplish a number of daily tasks in parks, playgrounds, town grounds, school grounds, public roads, sidewalks, parking lots and commercial areas. The Park and Open Space Division currently uses 22 backpack blowers and 6 small handheld units year round. The Division also uses 5 walk behind blower units that support maintenance operations primarily in the spring and fall. The Highway and Sanitation Division uses 8 backpack blowers and 3 small hand held units to support year round maintenance. Back pack leaf blowers and hand held units are used year round to complete the following tasks in an efficient manner:

- clear walkways after the grass has been cut;
- clean curb and gutter lines so that our sweepers can thoroughly clean the public sidewalks and parking areas;
- remove soil and organic matter from the spray pools and splash pads;
- restore fiber safety surfacing that has migrated out of the play equipment areas;
- clean off the poured in place or tile safety surfacing at the playgrounds;
- clean around fence lines and benches;
- remove standing water on ball fields, tennis courts and pathways;
- clear off the running track and synthetic turf fields from organic debris;
- clean grass clippings and organic debris from shrub beds;
- clean around headstones at the cemetery;
- remove sand, dirt and other materials that may cause slip hazards from stairs and walkways;
- light snow removal around doorways, entrance stairs and ramps;
- clean-up from sand/salt snow removal products;
- clean-up after tree pruning and removals; and,
- final clean-up of the site at the end of each park maintenance visit.

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Telephone: (617) 730-2156 Facsimile: (617) 713-3727
www.brooklinema.gov

Maintenance of parks, playgrounds, open spaces and town facilities such as the schools, public safety buildings, libraries, senior center and town hall all involve the use of leaf blowers. These facilities have a variety of surfaces such as concrete sidewalks, granite pavers, mulched areas, asphalt, gravel and lawn. These surfaces require clean-up of grass clippings, leaves and other debris. Leaf blowers enable workers to perform this task effectively and efficiently, especially in mulched and gravel areas, under trash receptacles, along fence lines and stairs/corners that cannot easily be raked or swept. Leaf blowing, as compared to manual raking, has the added benefit of minimizing the damage to newly installed plants and flowers when removing leaves and other debris from landscaped areas. Leaf blowers also minimize damage from rakes and brooms on painted court surfaces, synthetic turf and the running track. In addition, the commercial areas in Brookline including Coolidge Corner, Washington Square, St. Mary's and Brookline Village have a large amount of paved surfaces which require clean-up on a daily basis. This cleaning involves the collection and removal of cigarette butts, paper products, food waste, leaves and other vegetative debris. Many of these are in hard to reach locations that can be lodged free quickly and efficiently with leaf blowers. Public Works keeps over 200 miles of walking surfacing on the Town's public sidewalks clear of leaves and debris. Leaf blowers help to make this effort possible within our limited maintenance staffing.

Several years ago the Department of Public Works researched and tested the operational impact of using hand held tools or less powerful blowers. Our finding was that it would take 3-5 times longer to complete the assigned tasks if we were restricted from using handheld and backpack blowers. On average, in the Parks and Open Space Division, 1 employee per crew (7 crews) uses the backpack blowers during non-leaf season for about 45 minutes to 1 hour per day. The litter control/trash pick-up laborers (3) might use the blowers 45-60 minutes per day to clean under and around the trash barrels, clean eroded dirt off of the hard courts or remove trash from hard to reach areas. In addition, the tree crew uses the blowers to clean-up the work site after each tree pruning or removal. During fall leaf season and spring clean-up season about half of the Park and Open Space Division will average about 5-6 hours per day using leaf blowers. In the Highway and Sanitation Division leaf blowers are utilized by the section crews daily as part of the standard clean up procedure to remove debris from the commercial areas and public walkways. During spring and fall seasons, the Highway Division use leaf blowers about 5-6 hours per day to pick up the majority of the leaves that fall in the public way. Leaves that are not collected will not only cause slip and fall hazards, but clog catch basins and increase flooding problems. Leaf blower use in the spring season removes leaves, debris and sand from the public sidewalks and roadways. This also is a critical management practice as part of the Town's storm water management program.

We estimate that a single employee with one leaf blower is able to do what it would take five employees using rakes, brooms and shovels to do in the same amount of time. In other words, it would take one employee five times longer to do this work using a rake or broom instead of a leaf blower. Without the use of leaf blowers, the same level of labor effort would result in the completion of only about 20 percent of the assigned task. Furthermore, the use of rakes or brooms is much more physically demanding than the use of a blower, greatly adding to the fatigue factor of doing this type of work and further degrading productivity. We would expect to see an increase in muscle strain and repetitive motion injuries within the grounds keeping workforce. If the Town bans leaf blowers, the Public Works Department would have to compensate for lost efficiencies by significantly reducing the frequency of maintenance, adding additional maintenance staff, contracting for these services or a combination of these measures.

Appendix 11
Summary of Police Complaint Calls 2014-2016YTD

	2014	2015	2016	Av
January	1	2	3	3
February	0	1	0	1
March	0	0	4	2
April	6	6	2	7
May	12	13	13	19
June	35	21	19	25
July	20	17	7	15
August	13	18	16	16
September	16	10	6	11
October	3	5	0	4
November	7	18	0	13
December	9	6	0	8
Total	122	117	70	9

Police Department Report 2015 – 2016



Town of Brookline, Massachusetts



2015-16 Annual Report of Leaf Blower Calls

Below is the annual breakdown of all Leaf Blower-related calls that the Brookline Police Department received. There were a total of 121 calls from June 1st 2015 to May 31st 2016. Of these calls, 5 were officer-initiated and one was a walk-in. 8 calls resulted in written citations and 1 was a verbal warning.

Disposition of Calls		Sector	# In Sector
Adv/Complaint	25	1	21
Assist Rendered	4	2	13
By-Law Citation	8	3	15
Checks Out Ok	9	4	12
For the Record	9	5	13
Gone one Arrival	9	6	7
Nothing Showing	27	7	1
Released Call	2	8	18
Subjects FI'd	14	9	19
Unfounded Call	4	Unspecified	2
Unit Clear	5		
Verbal Warning	1		
Other	4		

2014/15 Total	2015/16 Total	%Δ
102	121	+18%

Moderator's Committee on Leaf Blowers
Final Report of the Committee

Date	Time	Disposition	Narrative
6/5/2015	8:30	Adv/Complaint	Landscaping company advised
6/5/2015	13:40	For the Record	No leaf blowers being used, lawn mowers are being used
6/5/2015	15:38	Released Call	
6/6/2015	8:41	Adv/Complaint	Company unaware of By-Law regarding blowers, has been in touch with DPW, will be looking into being exempt.
6/10/2015	13:28	Subjects FI'd	Electric leaf blower in use, advised and FI to be entered
6/12/2015	14:06	For the Record	No violations, raking dirt. Advised of town by-law. Caller satisfied.
6/12/2015	14:19	For the Record	No violations observed. Advised of by-law
6/21/2015	14:37	By-Law Citation	Company issued by-law citation will forward email to community service division
6/13/2015	10:10	Nothing showing	
6/13/2015	10:40	Adv/Complaint	Foreman advised of complaint and advised of town by law. FI.
6/13/2015	14:50	Adv/Complaint	Landscaper has been identified and advised
6/18/2015	9:49	Subjects FI'd	Verbal Warning - 1 FI
6/19/2015	15:28	Nothing Showing	
6/22/2015	9:35	By-Law Citation	1 written warning
6/22/2015	16:09	Adv/Complaint	Landscape crew working but not using blowers. All parties advised
6/24/2015	9:01	Nothing showing	Spoke to Mgmt, weed trimmer being used
6/24/2015	15:43	Assist Rendered	Company advised of Leaf Blower Bylaw
6/26/2015	10:29	Nothing showing	
6/29/2015	20:06	Adv/Complaint	Spoke to landscaping company, they were using a saw and do not have leaf blower with them, they were advised and are packing up for the night
6/30/2015	15:33	Adv/Complaint	Company advised of leaf blower by law.
7/2/2015	7:57	Nothing Showing	Nothing showing in surrounding areas
7/2/2015	9:23	Unfounded Call	Truck on scene, no leaf blower being used
7/2/2015	9:46	Unfounded Call	No Vehicles/Leaf Blowers in that area at all

Moderator's Committee on Leaf Blowers
Final Report of the Committee

7/2/2015	11:58	For the Record	Department Approved, Officer has info
7/6/2015	13:41	By-Law Citation	Issued a Town By-Law Violation w/ fine
7/9/2015	12:05	Adv/Complaint	Blower not in use and are aware of the By Law
7/14/2015	13:12	Nothing showing	No sign of leaf blowers, construction company power washing
7/16/2015	14:05	Checks out ok	No leaf blowers , using hedge clippers
7/17/2015	9:25	Adv/Complaint	Crew working there, did not witness them using blowers. They did admit to using electric blower. Advised.
7/17/2015	15:27	Gone on arrival	Spoke to caller, he was advised
7/20/2015	11:54	For the Record	Landscaper working for town, they are exempt. Done for day
7/24/2015	10:23	Adv/Complaint	Landscaper advised of Town By Law and will submit and Fi
7/24/2015	17:07	Adv/Complaint	Leaf Blowers in use. Could not ID Company
7/26/2015	12:03	Nothing showing	Checked the area
7/29/2015	8:44	By-Law Citation	Issued to management
7/29/2015	10:10	Verbal Warning	
7/30/2015	11:09	Nothing showing	Company working but not using any Leaf Blowers
8/5/2015	9:54	Nothing Showing	
8/5/2015	9:55	Nothing showing	
8/5/2015	11:37	Nothing showing	Checked the area
8/10/2015	13:19	By-Law Citation	By-Law citation
8/12/2015	10:06	Nothing showing	
8/13/2015	7:06	Adv/Complaint	Landscaper was advised
8/13/2015	11:04	Adv/Complaint	Landscaper was ID'd and advised of the town By Law. Their info will go to community service
8/13/2015	14:08	Adv/Complaint	They were cleaning up from the storm last week. They were advised
8/14/2015	10:42	Nothing showing	
8/15/2015	6:18	Adv/Complaint	Company was advised about the Town By Law
8/17/2015	8:59	Subjects FI'd	No leaf blowers on arrival, there was a gentleman carrying leaf blower back to his truck he was advised of the Town By Law

Moderator's Committee on Leaf Blowers
Final Report of the Committee

8/19/2015	14:27	Unit clear	Lawnmower being used no leaf blowers
8/20/2015	15:07	Adv/Complaint	Landscaper was advised, they did have a blower on briefly
8/24/2015	13:19	Gone on arrival	
8/25/2015	8:22	Subjects FI'd	Advised and FI'd
8/25/2014	8:43	Nothing showing	From South to the parkway
8/26/2015	10:36	Gone on arrival	Contractor had left. Witness saw them leave.
8/26/2015	13:29	Adv/Complaint	Landscaper advised
9/1/2015	14:58	Nothing showing	Checked Area, nothing showing
9/2/2015	11:24	Unit clear	Calling operations management
9/2/2015	11:41	X-Referenced	
9/3/2015	9:39	Adv/Complaint	
9/4/2015	13:33	By-Law Citation	Leaf Blowers were in use prior to arrival- warning citation issued
9/5/2015	11:55	By-Law Citation	Advised and given written warning, were unaware of regulations
9/7/2015	13:11	nothing showing	Nothing showing in area
9/8/2015	10:40	nothing showing	nothing showing in the area
9/11/2015	15:37	Adv/Complaint	Backpack equipment was on the lawn but not being used. Company was advised of the bylaw
9/14/2015	14:21	Assist Rendered	Party advised/thought they could be used this week. Equipment was in compliance
10/5/2015	14:11	By-Law Citation	Violation/1 FI, 1 parking citation issued, 1 Town By Law Citation issued
10/29/2015	16:08	X-Referenced	
10/30/2015	8:58	Unfounded Call	In compliance
10/30/2015	9:08	Checks out ok	Floor sanders. No landscapers/leafblowers operating in area
10/30/2015	10:10	Nothing Showing	
11/6/2015	11:38	Unfounded Call	Blowers are legal
11/9/2015	7:44	Nothing showing	DPW workers
11/9/2015	10:18	Assist Rendered	Advised, will be returning to vacuum

Moderator's Committee on Leaf Blowers
Final Report of the Committee

11/9/2015	13:14	Subjects FI'd	Advised and will go to DPW for a check
11/17/2015	12:16	In Compliance	All in accordance with by-law
11/18/2015	10:20	Released Call	Caller called back the work is done, cancel call
11/18/2015	11:56	Caller Satisfied	Spoke to caller, it checks out
11/18/2015	14:44	Citation Issued	Landscaper issued a citation
11/19/2015	7:39	In Compliance	Advised, in compliance
11/19/2015	7:55	Subjects FI'd	Company in compliance
11/19/2015	12:26	Subjects FI'd	Unable to read sticker they will make appointment with town
11/19/2015	13:13	Checks out ok	2nd caller complaining of loud decible level
11/20/2015	13:33	Has Sticker	Truck left scene
11/21/2015	7:40	Nothing showing	
11/24/2015	9:19	Adv/Complaint	Caller wanted a follow up report on a previous call
11/27/2015	7:33	Subjects FI'd	Leaf blower- Private Contractor was advised of by laws
11/27/2015	8:21	Unit Clear	Company identified- in compliance
11/27/2015	8:28	Transport Refused	Commercial leafblowing company- no leaf blower used at the time; advised of by-laws
12/1/2015	10:03	For the Record	2 machines, 1 not in compliance. Machine not in compliance shut off
12/3/2015	8:20	Subjects FI'd	Advised of town By-Law - no decal on any leaf blower. 1 FI and will pass on to CSD
12/7/2015	8:37	Checks out ok	Company in compliance and well aware of By-Laws; using back vac to collect leaves
12/16/2015	8:40	Subjects FI'd	Unfamiliar with law, advised; will take machines for inspection. Attempted to reach caller (No answer), Landscaper FI'd and advised
12/17/2015	10:22	Unit clear	No leaf blower in use - Not violator of FI prior; Notified landscaping company
12/18/2015	9:57	For the Record	Landscapers, have left area officer trying to locate and advise
12/18/2015	10:37	For the Record	Landscaper advised, machines in compliance, past date use allowed and advised of By-Laws
12/19/2015	10:33	Nothing showing	
12/22/2015	12:23	Nothing showing	Caller reported company left as she was calling
12/24/2015	12:02	Gone on arrival	



POLICE DEPARTMENT
DANIEL C. O'LEARY
CHIEF OF POLICE

TOWN of BROOKLINE *Massachusetts*

Annual Leaf Blower Complaints 2014-2015

During the time period beginning on June 1, 2014 through April 13, 2015, the Police Department responded to a total of 102 calls involving the use of leaf blowers. 23 of these calls were officer initiated and resulted in the issuance of 4 written citations and 3 warnings. Of the remaining calls, 17 resulted in the issuance of a written citation and 4 resulted in warnings. Twenty one of the calls were found to be exempt from the by-law because they were working for the Town. Furthermore, 4 of the machines were found to be in compliance based on their having received a Town validation sticker.

Leaf blowers may not be operated except between March 15th and May 15th and between September 15th and December 15th. Additionally, no leaf blower shall be operated before 0800hrs or later than 2000hrs Monday through Friday, and not before 0900hrs or after 2000hrs on weekends and holidays. No leaf blower may be used if the noise exceeds 67 db. The leaf blower by-law does not apply to electric powered blowers.

Call Disposition* 6/1/2014-4/11/2015	
Nothing Showing	15
Advised Complaint	25
Checks out OK	3
Unit clear	1
For the Record	1
Subjects Fld	4

Sector # of Calls	
1	12
2	5
3	6
4	11
5	20
6	4
7	5
8	24
9	15

*Does not include various other call backs

Moderator's Committee on Leaf Blowers
Final Report of the Committee

Date	DOW	Time	Disposition
6/5	Mon	955	Party was using a weed wacker
6/3	Tue	939	No leaf blowers, spreading mulch
6/3	Tue	1616	Gone on Arrival
6/4	Wed	1109	By-Law Citation and letter issued to contractor
6/4	Wed	1259	By-Law Citation and letter issued to contractor
6/4	Wed	1339	Caller Advised
6/6	Fri	931	No landscapers working there
6/6	Fri	944	By-Law Citation issued
6/6	Fri	1029	Advised Complaint
6/6	Fri	1231	Crew using rakes, now leaf blowers operated or in sight of officers
6/7	Sat	1435	no landscaping equipment in area
6/8	Sun	1638	Identified and advised- spreading mulch
6/8	Sun	1656	Nothing Showing
6/9	Mon	943	Gone on Arrival
6/9	Mon	1636	Gone on Arrival- company was mailed by law
6/10	Tue	1443	Gone on Arrival-by law note left in mail slot
6/11	Wed	829	Gone on Arrival - copy of by law with homeowner
6/11	Wed	853	Company Advised
6/11	Wed	920	Gone on arrival, reaching out to the company
6/11	Wed	942	company identified
6/11	Wed	1325	No power equipment, spreading mulch
6/12	Thu	1455	By-Law Citation Issued
6/12	Thu	1553	Nothing Showing
6/16	Mon	1055	Advised Complaint
6/16	Mon	1614	Spoke with resident, will advise company
6/17	Tue	1409	gone on arrival
6/18	Wed	1202	No leaf blowers, spreading mulch
6/20	Fri	1111	Nothing Showing
6/23	Mon	1648	Nothing Showing
6/24	Tue	1214	No Violation Using Hedge Trimmer
6/27	Fri	819	Town workers
6/27	Fri	848	Warning Issued
6/30	Mon	1019	Gone on Arrival, spoke with company denied use of leaf blower
6/30	Mon	1212	Nothing Showing- possible construction site
6/30	Mon	1517	Warning Issued
7/2	Wed	1111	No Leaf blowers, advised of by law
7/3	Thu	1628	Nothing Showing
7/10	Thu	1116	Lawn mower not a leaf blower
7/10	Thu	1459	Warning Issued
7/11	Fri	1222	company identified
7/12	Sat	849	Warning Issued
7/12	Sat	1612	4 Town By Law Citations Issued
7/17	Thu	908	Citation Issued
7/17	Thu	1140	Cars being cleaned, no leaf blowers
7/17	Thu	1534	No leaf blower observed, Advised
7/18	Fri	1207	Citation Issued

Moderator's Committee on Leaf Blowers Final Report of the Committee

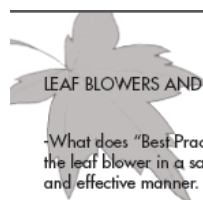
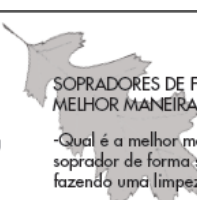
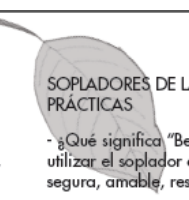
7/23	Wed	935	proper equipment being used, advised
7/25	Fri	1056	messages left for company
7/25	Fri	1135	2 companies advises, no observed leaf blowers
7/25	Fri	1149	advised of the by law- company unaware
7/25	Fri	1201	Company Advised
7/25	Fri	1237	Gardner in area, no leaf blowers observed
7/28	Mon	1615	company identified
7/29	Tue	1127	nothing showing
7/30	Wed	1020	Advised, given copy of TBL
8/1	Fri	907	Advised
8/6	Wed	917	Nothing Showing
8/6	Wed	1404	Gardner, no leaf blowers, advised
8/7	Thu	1109	Lawn mower not a leaf blower
8/7	Thu	1337	Cutting shrubs, no leaf blower
8/16	Sat	1347	Weed wacker and small lawn mower, no leaf blower
8/18	Mon	1015	Citation Issued
8/19	Tue	1726	no equipment being operated, advised
8/20	Wed	1400	No leaf blower in area, paving company
8/21	Thu	1427	Citation Issued
8/26	Tue	758	Citation Issued
8/26	Tue	1330	Citation Issued
8/29	Fri	1432	Citation Issued
9/2	Tue	1316	Citation Issued
9/4	Thu	1612	Not working upon arrival, advised
9/6	Sat	1418	2 leaf blowers, proper stickers
9/6	Sat	1429	Citation Issued
9/8	Mon	923	No violations
9/8	Mon	935	No violations
9/8	Mon	1033	No violations
9/8	Mon	1154	No violations
9/8	Mon	1249	No violations
9/10	Wed	1416	Ride mower and weed whacker, no leaf blower
9/11	Thu	814	no observation of leaf blower, company and resident advised
9/11	Thu	946	Power trimmers, no leaf blower
9/12	Fri	1319	Nothing showing
9/12	Fri	1402	company identified
9/13	Sat	1241	spreading loom, no leaf blowers
10/3	Fri	1145	Nothing showing
10/14	Tue	900	Blowers labeled and within regulated decibel, no violations
10/17	Fri	1223	Truck gone on arrival
11/3	Mon	1217	checks out ok
11/7	Fri	1054	Advised company, unaware of by law
11/11	Tue	856	Large vacuum, no violations
11/11	Tue	1019	Company Advised
11/20	Thu	743	Finished work, advised of complaint
11/25	Tue	1003	No violations
11/25	Tue	1506	work complete/ registered with the town

Appendix 12 – Other Cities and Towns

		Population	Type	DB Limit	Ban From	Ban To	Number Allowed	Other
<u>Palo Alto</u>	CA	67,000	G	65	Gas Ban	Gas Ban		
<u>Burlingame</u>	CA	30,000	G	65	–	–		
<u>Los Gatos</u>	CA	30,000	G&E	65	Gas Ban	Gas Ban		
<u>Greenwich</u>	CT	62,000	–	80	–	–		
<u>Evanston</u>	IL	76,000	G	–	May 15 th	Sep 30 th		
<u>Wilmette</u>	IL	27,000	G	–	May 15 th	Sep 30 th		30mins/3hrs
<u>Brookline</u>	MA	68,000	G	67	May 15 th	Sep 15 th		
<u>Cambridge</u>	MA	107,000	G and E	65	Jun 15 th	Sep 15 th	1 per 10,000	Registration
<u>Arlington</u>	MA	43,000	G	74	June 15 th	Sep 15 th	6000	30/ 15 mins
<u>Montclair</u>	NJ	39,000	G	–	June 30 th	Oct 1 st		
<u>Bronxville</u>	NY	6,500	G	–	June 1 st	Sep 30 th		
<u>Hastings on Hudson</u>	NY	8,000	G and E	70	May 16 th	Oct14th		
<u>Larchmont</u>	NY	6,000	G	70	June 1 st	Sep 30 th		
<u>Mamaroneck</u>	NY	19,000	G and E	–	May 15 th	Sep 30 th	<5000 1 & <3	
<u>New Rochelle</u>	NY	79,000	G and E	–	May 31 st	Oct 1 st		
<u>Rye</u>	NY	16,000	G and E	–	May1 st	Sept 30 th	1 per lot	
<u>Sleepy Hollow</u>	NY	10,000	G	–	May 24 th	Sep 30 th		Registration
<u>Tarrytown</u>	NY	11,500	G	–	June 15 th	Sep 15 th		Registration
<u>Tuckahoe</u>	NY	6,600	G	–	June 1 st	Sep 30 th		
<u>White Plains</u>	NY	58,000	G	70	May 15 th	Oct 1 st		
<u>Yonkers</u>	NY	200,000	G	70	Jun 1 st	Sep 30 th		
<u>Huntington</u>	NY	203,000		70				2hr/1hr

Appendix 13 – Best Practices Brochure

Brookline Leaves is an organization of landscape service providers that have got together to promote best practices and improve compliance to the Brookline Leaf Blowing regulations. They have produced a brochure (below) which has been distributed to many landscape service providers, the DPW and the Police Department.

 <p>LEAF BLOWERS AND BEST PRACTICES</p> <ul style="list-style-type: none">-What does "Best Practice" mean? It means using the leaf blower in a safe, courteous, responsible and effective manner.-Follow local rules and ordinances about when to use leaf blowers. Do not use very early in the morning or very late in the day.-Avoid using more than one blower at a time, especially in neighborhoods or around buildings where sound can be intensified.-Don't blow leaves out onto the street or onto neighboring properties.-Use the blower only when necessary and use the lowest possible throttle speed to do the job. Low throttle speeds significantly reduce noise, and they also provide the operator with maximum control. Full throttle is seldom necessary.-Pay attention when using a leaf blower. Don't point an operating blower in the direction of people, pets or open doors and windows.-Make sure bystanders, including other operators, are at least 30 feet away. Stop blowing if you are approached.-Wear hearing protection.-Use equipment that meets current (2006) EPA emissions standards for leaf blowers.-Think about the neighbors and neighborhood you are working in. How can you improve their impression of your company and crew?	 <p>SOPRADORES DE FOLHAS (LEAF BLOWERS) E A MELHOR MANEIRA DE TRABALHAR COM ELES</p> <ul style="list-style-type: none">-Qual é a melhor maneira? Trata-se de usar o soprador de forma segura, educada, responsável, fazendo uma limpeza bem-feita.-Siga as regras e normas locais sobre quando se pode usar sopradores de folhas. Não é para utilizá-los de manhã cedo nem muito tarde, quando as pessoas já estão em casa e buscam tranquilidade.-Evite utilizar mais de um soprador ao mesmo tempo, sobretudo em bairros ou perto de prédios onde o barulho pode ecoar muito.-Não sopre as folhas para a rua nem para terrenos de vizinhos.-Utilize o soprador apenas quando necessário e, para fazer a limpeza, ligue na velocidade mais baixa. A velocidade baixa reduz o barulho de forma significativa. Além disso, permite maior controle, para o operador. É desnecessária a velocidade máxima.-Preste atenção, ao guiar um soprador de folhas. Não o aponte na direção de pessoas, animais de estimação ou portas e janelas abertos.-Certifique-se de que esteja no mínimo a nove metros de distância de qualquer transeunte, inclusive de outros operadores de soprador. Se alguém se aproximar a você, desligue a máquina.-Utilize protetores de ouvidos.-Utilize equipamento que cumpre com os limites atuais (de 2006) da EPA, para emissões de sopradores de folhas.-Tenha consciência dos moradores e do bairro onde você estiver trabalhando. Como pode contribuir para formar uma boa impressão de sua empresa e a equipe?	 <p>SOPLADORES DE LA HOJA Y MEJORES PRÁCTICAS</p> <ul style="list-style-type: none">- ¿Qué significa "Best Practice"? Significa utilizar el soplador de hojas de una manera segura, amable, responsable y eficaz.- Seguir las reglas y ordenanzas locales respecto al uso de sopladores de hojas. No los utilice muy temprano en la mañana o muy tarde en el día.- Evitar el uso de más de un ventilador a la vez, especialmente en los barrios o alrededor de los edificios donde el sonido se puede intensificar.- No sople las hojas hacia la calle o hacia las fincas de los vecinos.- Utilizar el ventilador sólo cuando sea necesario, y utilizar la menor velocidad posible para hacer el trabajo. Las velocidades bajas del acelerador reducen significativamente el ruido, y también proporcionan al operador un control máximo. El nivel máximo de aceleración no siempre es necesario.- Prestar atención cuando se utiliza un soplador de hojas. No apunte con el soplador hacia las personas, mascotas, puertas o ventanas abiertas.- Asegúrese de que los transeúntes, incluyendo otros operadores, estén por lo menos a 30 pies de distancia y pare el soplador si se están aproximando.- Utilizar protección para los oídos.- Utilice un equipo que cumpla con los estándares actuales de la EPA (2006) sobre emisiones para sopladores de hojas. <p>En general, piense en los vecinos y en el barrio donde está trabajando. ¿Cómo conseguir mejorar la impresión que los vecinos puedan tener de su empresa y de sus colaboradores?</p>
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